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# PUBLIC WORKS

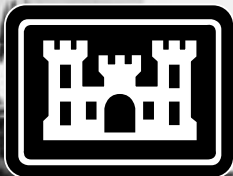
## *Digest*

Volume XII, No. 5

September/October 2000

*In This Issue...*

## Energy Management



**US Army Corps  
of Engineers®**

**SEE  
SURVEY  
PAGE 41**

# Public Works *Digest*

September/October 2000  
Vol. XII, No. 5



**US Army Corps  
of Engineers®**

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On the cover: Rotor is lowered into  
generator housing at Hartwell Powerplant.  
(Photo by Jonas Jordan)

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## LETTER FROM THE EDITOR



This September/October issue of the *Public Works Digest* is, as always, dedicated to energy-related topics. We would like to extend our congratulations not only to the winners of this year's Secretary of the Army Energy Conservation and Water Management awards and the Federal Energy and Water Management awards, but to all the hard-working nominees. We would also like to thank all the installation contributors for sharing their innovative ideas and solutions to the many energy problems they encounter on a daily basis. While we recognize that each installation is unique and different, there are *basic* similarities, and application of a success story, even in small part, can have a big impact on already scarce dollars.

By the time you read this, the Installation Support Division's move to Washington, DC, from the Humphreys Engineer Center will be a part of history, accomplished with very little disruption. Kudos to the Marine Corps, which provided the much-needed muscle! While all of Military Programs moved to the GAO Building as planned, other Corps elements originally slated to move the following week were delayed due to a strike at the telephone company. Whether or not they have moved as we go to print should not affect your requests for assistance, since the telephone numbers of personnel in the Pulaski Building moving to the GAO Building will remain the same. Please check the centerfold of this *Digest* for the new telephone numbers for Installation Support Division personnel. However, we should have new telephone number notification at our old locations in place for 60 days.

On the afternoon of August 15, 2000, the US Army Corps of Engineers held a ribbon cutting ceremony to welcome the more than 900 new occupants of 441 G Street, aka the GAO Building. This is the Corps' twelfth location in our capital since 1818. The Honorable David Walker, Comptroller General of the United States, greeted the many Corps employees

standing just outside the entrance to the new Executive Office on the Third Floor. "The GAO Building was completed in 1951, and it is on the National Register for Historic Buildings," said Walker. The block-long edifice was the largest of its kind at that time to have air-conditioning. "It is so well-built," he joked, "that if a nuclear device were to go off right now, the building would still be standing." MG Russell Fuhrman, Acting Chief of Engineers, invited the Corps audience to take note of the words boldly inscribed at the entrance to the building. "*Accountability, Integrity, and Reliability*. These are Corps values as well as General Accounting Office values," he said. It was fitting that three "long-time" Corps employees, James Ballif, Jane Schroth and William Vogel, had the honor of cutting the red ribbon, having been with the Corps since the early 1950s! Also attending the historic occasion were MG Milt Hunter, Assistant Chief of Engineers; LTG (Ret.) Henry J. Hatch, 47th Chief of Engineers; the Honorable Joseph Westphal, Assistant Secretary of the Army (Civil Works); and MG (Ret.) Pat Stevens, former Acting Chief of Engineers and Director of Military Programs.

Being in the same building on the same floor with all Corps headquarters elements is still strange, but new benefits emerge each day. We are all getting better at finding one another and putting a face to every name! In future, should you require assistance the ISD staff can't provide, you can easily be transferred to the appropriate person or office. That euphoric feeling of comradeship can actually be felt in the halls of this massive, marbled building. It's obvious that *esprit de Corps* lives and will thrive here!

Until next time...

*Alexandra K. Stakhiv*

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*P.S. Due to our recent change in location and the possibility of misdirected mail, we are once again running the survey on the last page of this Digest. If you haven't done so already, please take the time to fill it out now. We are depending on you, our readers, to help us make the Digest the publication that you want and need it to be.*



# Awards!

# Energy

## Federal Energy and Water Management Awards

Department of Defense – Army

### Individual – Exceptional Service

Jeffrey L. Hager, Energy Program Manager  
US Army Logistics Integration Agency  
New Cumberland, PA

*Exceptional Work*

### Small Group – Energy Efficiency/Management

222nd Base Support Battalion  
Baumholder, Germany

*Heating System Improvements*

414th Base Support Battalion  
Hanau, Germany

*Basewide Energy Initiatives*

### Small Group – Renewable Energy

Fort Hood, TX

*Fort Hood Renewable Energy Program*

### Organization – Energy Efficiency/Management

Fort Huachuca, AZ

*Basewide Energy Savings*

Aberdeen Proving Ground, MD

*Aberdeen Energy Project*

### Organization – Alternative Financing

Military District of Washington

Fort Lesley J. McNair, DC

*Military District of Washington ESPC*

Tobyhanna Army Dept, PA

*ESPC For Utilities at Tobyhanna Army*

*Depot*

### Organization – Water Management

Fort Huachuca, AZ

*Basewide Water Savings*

### Organization – Innovation/New Technology

Yuma Proving Ground, AZ 85365-9102

*105 kW Solar Powered Smart Weapons*

*Test Range* 

*Congratulations  
to all!*

## 22ND ANNUAL SECRETARY OF THE ARMY Energy Conservation and Water Management Awards

### Active Army

**1st Place:** U.S. Army Infantry Center and Fort Benning, Georgia

**2nd Place:** U.S. Army Yuma  
Proving Ground, Arizona

**3rd Place:** XVIII Airborne Corps  
and Fort Bragg, North Carolina

### Army National Guard

**1st Place:** Idaho ARNG

**2nd Place:** Arizona ARNG

**3rd Place:** Louisiana ARNG

### U.S. Army Reserve

**1st Place:** Fort McCoy, Wisconsin

**2nd Place:** Headquarters 70th  
Regional Support Command

**3rd Place:** Headquarters 63rd  
Regional Support Command





*Winners and presenters of the 22nd Annual Secretary of the Army Awards.*



# Bridging energy and environment

by Alexandra K. Stakhiv

When Ray Clark, Principal Deputy Assistant Secretary of the Army for Installations and Environment, first came to his job one and half years ago, he thought about what he could do for the Army. He decided to concentrate on exploring energy opportunities at Army installations and employing cost-effective, innovative environmental technologies to clean up and sustain Army training lands.

"I often thought that if I wanted to get the biggest bang for my environmental dollar, I would invest my money in energy management," said Clark during a recent interview with the *Public Works Digest*. "If you look at our installations, most of our air emissions are associated with generating or using energy. The whole energy life-cycle from pumping it out of the ground to moving it across our highways to storing it on our installations to using it—each step of the way has some environmental impact. Indeed, the cumulative effect of these emissions is causing global change."

According to Clark, we can actually change those conditions just by our management. The way to do that is to conserve energy, choose a different source of energy, or change our business process.

Our installations, continued Clark, are scattered all over the world, and as large land trustees, we have the opportunity because somewhere on an installation the sun must be shining and the wind blowing. At Fort Bliss, for example, they have lots of sun and wind, so why not take strategic advantage of it? The Commander and Deputy Com-



Mr. Ray Clark

mander at Fort Bliss are very supportive of employing wind turbines for energy production. Wind energy is a renewable resource. So no matter how much we use, there'll always be more and the price continues to decline with advances in turbine technology.

The Army is hoping to make Fort Bliss a prototype to determine whether it can take advantage of wind energy. Talks have been ongoing with El Paso Electric for about a year, but no agreements have been reached yet.

Clark has been discussing energy management as a corporate decision with the Secretary of the Army. "If you look at where the Army is placed in the whole energy business, you'll see that 80 percent of the federal government's energy is used by the Department of Defense (DoD) and 40 percent of DoD's installation energy is used by the Army," he said. "We are an energy-intensive organization in terms of mobility and base facilities. We have a great opportunity. One and a half percent of our budget is energy. You are looking at a \$70 to \$75 billion Army, so one and a half percent is a very significant amount of money."

One of the things Clark has been trying to do is connect energy and environment. "I'm not trying to do any reorganizing," he stressed. "I'm talking about a bridge between the two. I really believe that the installation is the place where the bridge between energy and

environment really works for a strategically cheaper and more environmentally benign energy. Energy and environmental program management provide benefits for both programs."

This makes sense because essential energy conservation and pollution prevention measures are inherently related. Each year, the Army spends \$2.3 billion on energy and environmental programs. That amounts to 3.4 percent of the estimated \$67.4 billion for Fiscal Year 2000! Furthermore, energy consumption during military activities directly impacts on our war fighting capability, the environment, and the cost of operations.

In October 1999, with the goal of integrating energy with the environment, Clark asked the Vice Chief of Staff and the Under Secretary of the Army to co-chair an Energy and Environmental Policy Board to take energy matters to the most senior level in the Army. The Board was established in December 1999 as an executive-level decision making body and a permanent standing committee of the Secretary of the Army. It includes the four star MACOM commanders and the deputy Chiefs of Staff. As the primary Department of Army committee responsible for providing oversight and direction to DOA energy and environmental activities, it will meet semi-annually and at the call of the co-chairs. ➤



The newly created Board will meet for the first time in November, said Clark. The decisions made at this meeting will be shared at the Army Worldwide Environment and Energy Conference to be held in Atlanta, Georgia, 4-7 December 2000.

"Our Energy/Environment Conference will bring together all the energy and environmental managers on our installations as well as the MACOMs, HQDA, field operating agencies, lawyers and research personnel dealing with energy and environmental issues," said Clark enthusiastically. "This will be the first time we have had a conference like this."

Earlier this year, after speaking at a Wind Powering America Conference held in Palm Springs, Clark heard from the industry that the Army was difficult to do business with. He directed a wind energy conference with the industry, which was held at the Defense Energy Support Center (DESC) at Fort Belvoir, Virginia.

"We were trying to work the wind power issue at Fort Bliss with El Paso Electric," Clark explained. "When I attended the conference in Palm Springs, things were dragging. The wind energy industry was disappointed in the pace and scale of the Army's commitment to wind. The problem turned out to be that they didn't understand our culture or how to do business with the Army. They didn't understand that the Army has training facilities, which are *sacrosanct*, and we will not sacrifice valuable training land. Even if

the wind is blowing in this one spot and it's a great wind, it's competing demand on our core mission. If it's a wind farm versus an Army training site, the training site wins hands down."

But there are ways that they can work together and he's not giving up.

Clark wanted this conference to bring the industry people together with the Army people to talk about how the Army does its business. In this way, the industry could better structure their proposals.

"We are seeking opportunities to use wind power," Clark continued. "We just have some unique constraints. The conference was a great success. The wind industry is going back to the drawing board with some proposals. We haven't given up on Bliss either. The Garrison Commander called me recently and said that she still wants to do this. Based on the work they have already done, we're also looking at Fort Huachuca as a possible leader for wind power."

In the meantime, oil prices are rising. This winter, the Army may face much higher energy prices than anticipated. This means something else will have to fall off. That's a bad trade-off, according to Clark. At the height of the energy crisis of the 1970s, the United States was importing about 30 percent of its oil-based energy. Now that figure has gone up to 56 percent, and is headed for 66 percent soon.

"That's how strongly we're depending on some other country for our energy," added Clark. "I cannot stress enough the importance of this issue. It's a national security issue, not just an environmental one. We fight wars over this kind of stuff. This country must develop a strategic energy policy. We've got to get a more advanced, more forward-looking energy policy in place that takes advantage of technological advances, is sensitive to world conditions, and is sustainable into the future."

Renewable energy is just one piece of it, according to Clark. Research and development has to play a role too. We need to take strategic advantage of the fact that *photovoltaics* and *fuel cells* are also coming down in price dramatically.

"By the way," added Clark, "one of the things we balked at in Fort Bliss was that the utility company wanted to tack on a surcharge and bill us 12 cents per

kWh. California is paying 22 cents for standard service now! Clearly, in light of this cost, the San Diego Naval Base made a good investment in photovoltaics a few years ago. We don't want to miss out on those wise investments."

"We may be relying too much on privatization and ESPC to carry us through. That's like having one tool in the toolbox! If those things don't work, we're stuck heading back to planning a new path and get further behind the power curve. If you can get a good return on your investment in 5-7 years, why not invest? Our doctrine that calls for no more investments in energy infrastructure cannot blind us to good investments, yet we did away with our investment strategy, the Energy Conservation and Investment Program (ECIP). We need to get back to investing wisely to get a good return on investment. It's good business!"

To that end, Clark created the Energy and Environmental Policy Board to ensure that our senior leaders have the opportunity to deal with energy issues in a clear and transparent manner. "We don't want to be dealing with small decisions," he stressed, "but there are big decisions inherent in the energy field. Recognizing that the guys in the field are already working extra hard, we need to stretch *ourselves* more to support them. Fort Bliss asked for and was denied \$80,000 to do a wind energy study! The potential is there to save manifold times that investment. I think we need to do something about getting our energy managers the support they deserve from the corporate level."

"As I said before, ESPCs are great, but we need a more diverse toolbox. The New York Times recently had an article about how big companies are paying their energy managers salaries of \$500,000-\$600,000! They know that these people will deliver much more than their salaries. We're finally starting to deregulate and trade across lines. Why *shouldn't* we cut a better deal?"

Through the Board, Clark hopes to accomplish financial, national, and environmental security *and* empower people to start making wise investment decisions.

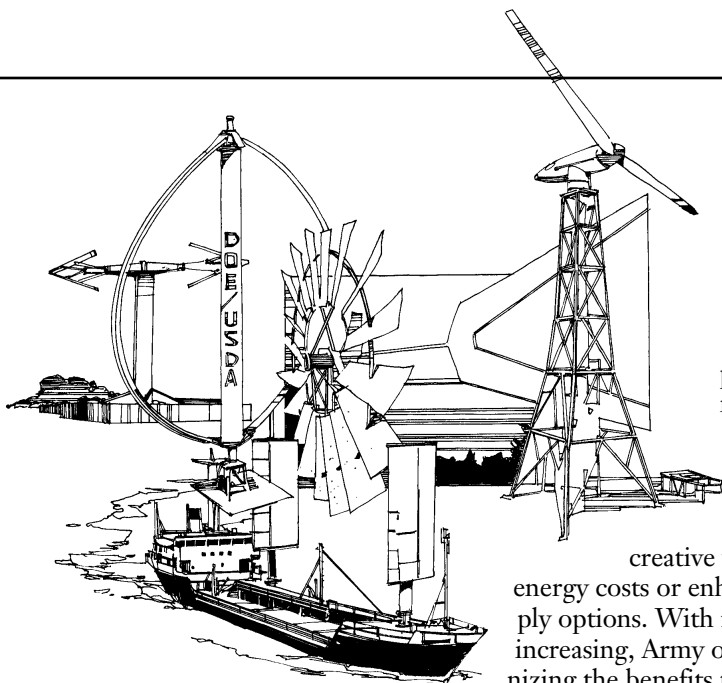
"For the scale, it's still not enough," said Clark. "We need to continue experimenting with new technologies

## Submit your articles and photographs to the *Public Works Digest*

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# Army and wind industry conduct dialogue

by Randy Swisher

**T**he Army welcomed members of the wind industry to Fort Belvoir, Virginia, last August to share ideas about how the Army can begin to take greater advantage of wind power, the world's fastest growing energy technology. The Forum, which was conducted between several dozen wind industry leaders and key Army personnel, was initiated by Ray Clark, Principal Deputy Assistant Secretary of the Army for Installations and Environment.

Wind industry participants were encouraged by the exchange, although obstacles to widespread use of wind

power by the Army remain. On the optimistic side, the Army has the resources and interest in creative ways of reducing energy costs or enhancing their supply options. With fossil fuel prices increasing, Army officials are recognizing the benefits that wind has to offer in terms of fuel diversity, and domestic fuel control, in addition to the economic and environmental benefits. On the challenging side, however, the Army's energy and capital investment budgets have been steadily decreasing since the end of the Cold War. Given that many Army bases already have preferential rates from their traditional energy supplier, new entrants may face an uphill climb.

## Driving Forces Behind Rebirth

Wind power has begun to re-emerge in the 1990s due to a combination of technology, market, and policy factors.

Probably the most important change has been the precipitous drop in wind power costs. Wind power technology has improved throughout the 1980s and 90s to increase efficiency, raise rates of availability and lower the wind speed necessary to produce power. Wind power has dropped from about 38 cents per kWh in the early 80s to between 3-6 cents per kWh today in nominal terms (in real terms, the price reduction is even more dramatic). The US Department of Energy has set the goal of further reducing the cost of wind power to 2-4 cents per kWh by 2007, thereby making it more than competitive with traditional fuel costs, which are now at around 3-4 cents per kWh (not including the costs associated with the pollution they emit).

Another driver has been the restructuring revolution that has been slowly rolling across the US in the past decade. As customers are empowered to choose the type of fuel that generated their electricity, utilities are seeing a surge in demand for the use of

*(continued from previous page)*

and applying them on our installations. One of these is sustainable design and development or cradle to cradle design. Cutting off the lights is a great thing, but everybody has to be a partner in the whole energy management area. That starts with the architect and runs through the builder to the user to the eventual recycling of the building."

The Army now has a sustainable design policy for all new construction. The Corps is beginning to train its construction personnel and develop new standards for building construction.

Clark recently directed the Army Environmental Policy Institute (AEPI) to add an Energy Group at AEPI to look at trends and technologies that are 5-7 years down the road. What will

technology be like in the energy area? What laws and regulations will be in effect? How will we conduct our business? Up until now, the Army Secretariat wasn't really looking at energy too closely.

Clark plans to move the whole AEPI into an historic building on Fort McPherson. The post is designing it as a sustainable building and using the latest technology in adaptive reuse to show how energy performance in a historic building can be accomplished. Together with CERL (Construction Engineering Research Laboratory), they also plan to do an energy audit at a few installations to see where the best opportunities lie for saving energy by changing processes.

"What does deregulation really mean for the Army?" asked Clark. "If

global temperatures continue to rise, will we need more energy? Where will we get more energy? What kind of energy will be available? At what cost? Can the Army be the catalyst for a new way of federal energy management? Technology has changed so much in recent years. Today you can turn lights, air conditioning, and heat on and off just by entering or leaving a room, rather than manually. There is technology development outside the energy area that has yet to be applied to energy.

"Sometimes we need to spend money to save money. Investment is a tough sell in an era of tight budgets, but we *have* to do it," he concluded.

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resources that are environmentally benign. In fact, more than 175 utilities now offer their customers a wind-energy-based electricity product. In states that have already passed restructuring legislation, such as California and Pennsylvania, thousands of customers have opted to have a portion or all of their electricity generated by a renewable resource, often committing to pay more on their electricity bill than they would have otherwise.

The third driving force has been policy initiatives on the federal and the state level. On the federal level, the Congress voted last year to extend the production tax credit offered to renewable electricity generation until the end of 2001. Several states have passed bills that support renewable electricity generation. Texas' new utility restructuring legislation, for example, establishes a Renewables Portfolio Standard that requires 2,000 MW of new renewable energy be built in the state by 2009 to provide 3% of the state's electricity production.

Another federal effort is the Department of Energy's "Wind Powering America" initiative announced last year by DOE Secretary Bill Richardson. Wind Powering America calls for 5% of the U.S. electricity supply to be provided by wind energy by 2020—the equivalent of about 80,000 MW of installed capacity. In addition to the Wind Powering America goals, the President signed Executive Order 13123

last year, which requires federal agencies to increase their use of renewable energy. A number of goals have been established within the Army to encourage the reduction of greenhouse gasses and pollutants.

### The Potential for Wind Technology in the Army

The Army could increase power reliability and provide cost savings almost anywhere diesel fuel is being shipped to remote locations. For example, a wind/solar hybrid system with back-up diesel generator can provide consistent power 24 hours per day while reducing fuel usage as much as 90%. In East Timor, delivering fuel and water via helicopter can cost as much as \$5,000/hour, where installation of one 1.5 kW wind turbine can provide 120,000 liters per day of water for a one-time cost of \$5,000.

In another example serving remote locations, there are currently two small turbines installed on a Navy telecommunications platform that are providing an average of 60 kWh per day with almost no back-up fuel purchase, storage or shipping costs.

There are numerous approaches the Army could take in order to take advantage of the price-hedge, environmental, and fuel diversity benefits of wind power on a larger scale: The Army could consider erecting turbines on base, either in stand-alone wind or hybrid systems with another fuel source. This is especially feasible for small wind turbine applications. But for wind farms, the best wind resources may not be located on the base and the mission of the base may not be compatible with erection of large towers.

The simpler approach would be to simply enter into a power purchase contract (in states where this is currently possible) with a wind developer who would provide wind-generated electricity directly to the base.

A third approach, also relatively easy, would be to purchase "Green Power" from a utility or power supplier.

In the Denver area, 30 government agencies, including Fort Carson, agreed to purchase green power from their local utility. The purchasing agents worked hard to assure that the purchases would be cost-neutral, through efficiency audits or transferring other energy savings to the green power purchase. This approach is likely to result in a higher cost of power than a direct power purchase contract, however.

Another "Green Power" approach would be for the Army to reap large-scale emission reduction benefits from wind power by purchasing the environmental attributes of the power separately from the commodity electricity, as in green "tags" or "green credits" purchases.

The Environmental Protection Agency recently announced a green credits purchase, which means that they will provide the funding for the installation of one large utility-scale wind turbine in an excellent wind resource area in the Northwest and take credit for the emission reductions that it is responsible for at its facility in California.

The Army should conduct a systematic analysis of all the diesel facilities currently serving the Army and evaluate those that could be more cost-effectively served by small wind turbines. There are approximately 64,000 mobile diesel generators serving the U.S. Army, with about two-thirds of such generators being 5 kW or smaller. About half are operated at less than a 20% load.

Whatever approach is taken, there are certain general rules that ought to be kept in mind if wind power, especially on a bulk power basis, is to be acquired on a least-cost basis. In order to achieve the lowest-cost wind power, the two most important factors are financing terms and wind resource. The best financing terms can be won with a long-term contract, and a large project. The power in the wind is a cubic function of the wind speed, so placing wind turbines where the wind speed is optimized is essential to getting the most economical power.

POC is Satish Sharma, (703) 428-7001, e-mail: [satish.sharma@hqda.army.mil](mailto:satish.sharma@hqda.army.mil) **PWD**

*Randy Swisher is the Director of the American Wind Energy Association, (202) 383-2510.*





*Yuma Proving Ground recently won the Federal Energy and Water Management Award in the category of Organization – Innovation/New Technology for the 105 kW Solar Powered Smart Weapons Test Range.*

## New range to test smart munitions

*by Chuck Wallenjohn*

The newly-constructed Smart Weapons Test Range complex at Yuma Proving Ground was dedicated in late January and is now being used to test Wide Area Munitions and countermines. The test complex consists of a solar power plant, control building, target tracks, an instrumentation power grid, and about 15,000 acres of remote range area.

The site was developed to allow testing of sensors and “intelligent” weapon systems in a desert area with minimal disruption from noise or vibration, officials said. They explained that the site will evaluate modern munitions incorporating computer “smarts” that enable them to discriminate between targets.

The Wide Area Munition systems currently being tested are smart weapons meant to destroy enemy armored vehicles. The munitions incorporate a characteristic common to all modern U.S. mines that ensures they won’t become a long-term hazard, officials said. The munitions are designed to either self-neutralize or self-destruct at the completion of their mission.

Also being tested now are counter-mine operations, which often involve explosives used to clear mine fields. Future tests include the design and construction of a minefield to test airborne detection systems aboard drones or satellites. Directed energy weapons may also be tested at the site, officials said. About 20 Yuma Proving Ground personnel will work at the site during active test operations, supplemented by another 10 to 15 people flying in from around the country, said Jay Marchant, a mine, countermine and demolitions/unexploded ordnance team leader.

Alan Tinseth, who boasts 17 years of test experience at the proving ground, manages operations at the new range. He says formal planning began in 1996. “Construction of the building and the adjacent solar power field was ongoing for about two years,” Tinseth said, “and what we ended up with is a state-of-the-art facility that helps make Yuma Proving Ground a leader in the smart munitions test area. Because of the facility’s size and remoteness, we can manage and operate several tests at the same time.”

The site’s solar power facility will generate and provide electrical power for the operation of the range complex, which is located about five miles away from existing power lines.

The solar power facility was developed as a cooperative research and development agreement between U.S. Army Yuma Proving Ground and Arizona Public Service, a power utility. This facility represents the proving ground’s first attempt at using Southwest Arizona’s abundant sunshine to dependably provide the large quantities of energy needed at a major test site, officials said. They explained that a number of other solar power sites operate at the proving ground at a variety of locations — one dating back to 1978 — but this is the only one at a test site totally depending on it for power. To produce the power facility, the proving

ground provided solar panels, the building, and storage batteries.

Arizona Public Service provided computer software and electrical monitoring expertise.

“We’re on the forefront of developing joint partnerships like this with private industry,” explained Bob Allen, Chief of Yuma Proving Ground’s Public Works Directorate. “The benefit is that it demonstrates the applicability of this renewable energy source in the testing arena. This helps to further the development of this technology, which could be intensely important to everyone in the future.”

U.S. Army Yuma Proving Ground is a general-purpose test and training facility that tests nearly everything in the ground combat arsenal, officials there said. Last year, over 167,000 rounds were fired, 36,000 parachute drops took place and nearly 4,000 air sorties were flown at the proving ground. **PWD**

*Chuck Wallenjohn is a public affairs specialist with the Public Affairs Office at Yuma Proving Ground.*

## New energy-savings contract nets high-level award

*by Michele Yeager*

Tobyhanna Army Depot was recently selected as a winner of the 1999 Federal Energy Management Award in the “Organization-Alternative Financing” category. Last April the depot won the Army Materiel Command (AMC) FY00 Energy Management Award.

These awards were based on the depot’s Energy Savings Performance Contract (ESPC), explained Jim Scott, Director of Public Works. An ESPC is an alternative to the traditional method of financing energy efficiency improvements in federal buildings,

which is through federal appropriation of capital funds. Under this alternative financing arrangement, federal agencies contract with energy-service companies, who pay the up-front costs. These costs include identifying building energy requirements and acquiring, installing, operating, and maintaining the energy-efficient equipment. In exchange, this contractor receives a share of the cost savings from the improvements over the life of the contract.

“Our ESPC is the largest one at a single installation within the entire federal



# Army Utility Privatization Program — a GSA national award winner

by William F. Eng

The Army's program and the OAC-SIM (Office of the Assistant Chief of Staff for Installation Management) employees tasked with privatizing all Army-owned utility systems have been selected to receive the Annual General Services Administration (GSA) Achievement Award for Real Property Innovation for the year 2000. The GSA award, now in its fourth year, was established "...to honor 'the dreamers and the innovators' in the Federal property, real estate industry for their forward-looking policy and management practices." All federal government agencies were eligible to compete in this search for "...cutting-edge policies and practices to:

- Enable the government to work smarter
- Save agencies time and money
- Achieve organizational goals
- Improve asset management
- Sustain our environment"

The Army initiated its program to privatize Army-owned installation electric, natural gas, water, and wastewater utility systems in the early 1990s. Policies and procedures have evolved over time to guide installations and the various supporting agencies in implementing this program. As the Army program matured, it gained further credibility when a 1997 U.S. Army Audit Agency audit verified that the program goals of long-term cost savings/cost avoidance, as well as more reliable utility systems, were achievable.

In December 1998, under the Department of Defense (DoD) Reform Initiatives, a directive was issued mandating that all DoD installation utility systems be privatized by September 2003, unless exempt for economic or security reasons. This Reform Initiative (Directive #49) was modeled on the Army program.

Then the Congress, convinced of the merits of the DoD Utility Privatization Initiative, included in the National Defense Authorization Act for Fiscal

Year 1998 the vital legislation to carry out this mission. The Secretaries of the Military Departments (Army, Navy, and Air Force) were granted authority to privatize installation utility systems, when economically sound, after giving 21-day advance notice to the appropriate Congressional Committees.

GSA had an independent panel of government and industry experts from the real estate community select the award winner from a highly competitive field of 35 entries. The Army utility privatization team is the very first Army, or DoD group for that matter, to be bestowed this prestigious GSA award.

Presentation of the award will be made at a ceremony in Washington, DC, on 4 October 2000. A plaque will

be presented in recognition of the forward-thinking and cutting-edge policy of the Army program. The award also recognizes the core of dedicated Army employees on the Utility Privatization Team, which is based in the Office of the Assistant Chief of Staff for Installation Management on the Army Staff, who will also be individually honored and share in a monetary award.

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(continued from previous page)

government," stated Scott. "The primary focus of the ESPC was to replace our aging, coal-fired central heating system with a decentralized natural gas heating system."

Other energy-saving features incorporated in the ESPC include upgraded lighting throughout the depot's industrial areas (i.e., more efficient lamps and ballasts) and improvements to the air compressor system.

More specifically, the project includes:

- 10 new boiler plants that will connect to existing building steamlines and will be located either inside or adjacent to those buildings.
- 36 industrial forced-air furnaces, called air-rotation units, which are located inside general-purpose warehouses.
- Retrofitting 18,800 lighting fixtures with more efficient lamps and ballasts.

Tobyhanna entered into the ESPC with HEC Inc., said Mechanical Engineer Joe Pearson, Engineering Division, Directorate of Public Works (D/PW). "The \$32 million contract will safeguard the depot's mission by providing reliable heat and process steam, and efficient lighting."

ESPC will help the depot achieve a 42 percent reduction in energy consumption, as well as 20 percent reduction in water usage and 60 percent in air emissions, added Mechanical Engineer Jim Brandle, Environmental Management Division, Directorate of Industrial Risk Management. "It also includes an Energy Monitoring Control System that optimizes the heating, ventilation and air conditioning systems."

These ESPC reductions will help pay for the project through less fuel consumption and ensure compliance with mandated reductions of energy, as required by Presidential Executive Order 13123.

"Kudos to Jim Brandle, who prepared the award documentation and coordinated that with D/PW," Scott commented. "Bill Leonard [of D/PW's Engineering Division] and Pearson, along with Brandle, spearheaded the long process that led to the ESPC contract."

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*Michelle Yeager is the Assistant Editor of The Tobyhanna Reporter, the Tobyhanna Army Depot newspaper.*



The U.S. Army Engineering and Support Center, Huntsville, has been active in the privatization of utility systems since 1994. In that time, many lessons have been learned about improving the privatization process.

Arguably, the most important of these lessons is that success depends heavily upon the government's ability to develop a well-defined scope of work. Without it, the government and potential owners of the systems have a very broad range of estimates as to the efforts and costs necessary to own, operate, maintain, and renew the systems.

One new method for creating a well-defined scope of work is presently being implemented by the Huntsville Center. It is called the indefinite delivery approach, and is being tried at two U.S. Army installations.

Under the indefinite delivery approach, offerors are asked to provide proposals to assume ownership of the system using the best information available. In addition, offerors are requested to describe their procedures and costs to develop an in-depth assessment that accurately characterizes the system.

Developing a well-defined scope of work is a challenge because at many military installations utility maps and drawings are not up-to-date, records on operation and maintenance are not available, and there are no plans for system renewal at the end of its useful life. Reliable information on the system inventory, its location, and its condition may also be missing. System condition is especially difficult to determine for pipes, cable, etc., that are buried or otherwise inaccessible for inspection.

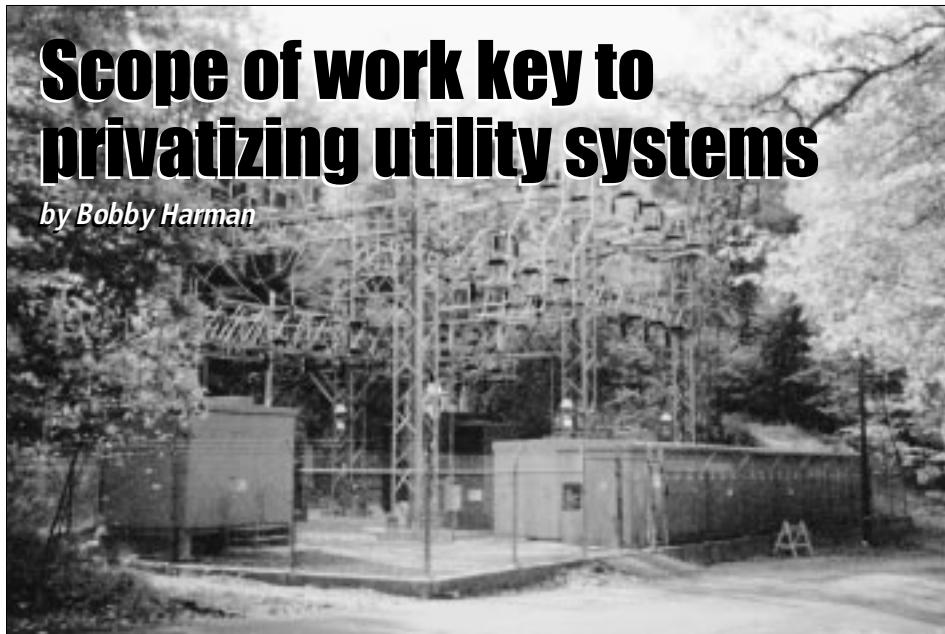
There are several effects of not having an exact characterization of the utility system. On the government's side, assumptions must be made to develop a cost estimate that shows what it should cost the government to own and operate the system in accordance with accepted industry standards.

Likewise, offerors must make assumptions that result in elevated costs to cover the additional risks that come from not knowing exactly what the current or future requirements might be. In many cases, a cost reimbursable structure is proposed for items that should and could be a fixed cost if better information were available.

It stands to reason that the solution

## Scope of work key to privatizing utility systems

by Bobby Harman



*A typical substation on an Army installation*

to these problems is to develop a better definition of the work to be performed before awarding a contract to transfer ownership of the system. The new method created by the Huntsville Center's Utility Privatization Team calls for the government to evaluate the proposals and select the "best value" contractor. A basic contract will be awarded along with an initial task order that covers preparation of a precise and detailed work definition. The government will pay the contractor for work required under the initial task order.

After award of the basic contract, the government will deal exclusively with the "best value" contractor. During performance of the initial task order, the "best value" contractor will refine the scope of work and make changes in its proposal and costs where new or additional information is found to justify such changes. This gives the installation more flexibility and control over the final scope and price.

The burden of accurately defining the utility system inventory, condition assessment, and the environmental baseline survey is placed on the contractor after award of the basic contract but prior to ownership transfer. The government will use the findings from the initial task order to revise the government estimate. If it is found that the government will benefit from the transfer of system ownership to the "best

value" contractor, a second task order will be issued to execute the transfer.

Since the government will deal exclusively with the same contractor who developed the final scope of work, the ownership transfer and agreement should be smoother and more accurate. Also, the government and the contractor will base their final cost estimates on the same work definition, which should make the privatization decision easier to evaluate and to defend, if necessary. In addition, the installation will have the capability to negotiate additions or deletions to the scope of work in an open partnership with one contractor, and additional task orders may be issued in the future as requirements change.

There is one disadvantage. The installation must have the funds to pay for performance of the initial task order before it is awarded. However, the Huntsville Center's Utility Privatization Team is confident the advantages associated with this approach will be more than adequate to compensate for the disadvantages.

Time will tell if the approach lives up to expectations.

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# Progress report on Army's Utilities Strategy

by Richard Dubicki

The March 1995 edition of the *Public Works Digest* featured an article by BG Robert Herndon titled "Army Develops New Utilities Strategy." The theme was to bring Army's \$25 billion utility system in the United States into the twenty-first century. The proposed strategy had three prongs:

- Hold the M&R line of 1.75% of plant replacement value.
- Privatize our utility systems where ever feasible and lastly.
- Modernize those parts of the utilities infrastructure which will never be privatized.

General Herndon backed up this strategy by stressing "...the Army simply does not have the many billions required to revitalize our utilities infrastructure."

Five years have passed and General Herndon's strategy is still sound. The battle to obtain M&R funding still goes on and probably always will. When a budget trade off is made between weapons systems, like the Apache, and maintaining utility systems, urgency usually makes a winner out of the more visible and glamorous weapon system.

The other two prongs of the author's strategy, on the other hand, have moved out. The Army has a vigorous and modestly successful utilities privatization program as well as a viable modernization initiative.

The Army was the first of the military services to recognize the potential of utility privatization. In December of 1997, DOD picked up on the Army's lead and directed all of the services to privatize their utilities. Included were natural gas, electricity, water and wastewater. The intent of Defense Reform Initiative Directive (DRID) #9, the authorizing order, was the same as expressed in the March 1995 edition of the *Public Works Digest*—to turn over to private utility providers all installation level utilities except those which affected security or those which were not economical to privatize.

The Assistant Chief of Staff for Installation Management (ACSIM) was

charged with this task and given until January of 2000 to carry it out. At first blush, this seemed like ample time, but the sheer number of utilities and the complicated privatization process made it a real management challenge. However, all of the services encountered difficulties in meeting the milestone.

Acknowledging the many challenges, DOD issued a second DRID, #49, in December 1998 and established new milestones and a completion date of 30 September 2003.

There are 1,104 Army utility systems all over the world, more than in any other military service. To further complicate this process, their ownership is divided among the Regular Army, the Reserves and the National Guard. The ACSIM Directorate of Facilities and Housing was charged with this responsibility.

OACSIM realized at an early stage that with a program of this size and complexity, a means for monitoring progress was needed. One of the project managers on the team, Richard Dubicki, with the assistance of a contractor, developed a web-based management information system, fittingly called the Privatization Tracking System or PTS. The PTS helps the ACSIM account for, and keep track of, each of the Army's utility systems. It is designed to produce quarterly reports for ACSIM and OSD, and can be rapidly modified to accommodate new or changed requirements. As a web-based system, PTS can be easily accessed by all levels of management from Army installations to OSD.

Contracting for utility privatization is a time consuming part of the total process. The Army has chosen to decentralize contracting, which allows the installations to do their own contracting or get support from the Corps of Engineers District Contracting Offices or the Defense Energy Support Center (DESC) at Fort Belvoir. DESC is DOD's focal point for the procurement of energy and is very involved in supporting a number of Army installations in their

privatization efforts. This takes a considerable workload off the installation's busy contracting offices and allows DESC to use its specialized expertise to help the Army's contracting effort.

DRID#49 established three milestones:

1. 30 Sep 2000— Make a "Go/No Go" decision for each system based on study determination (Go forward to development of an RFP and formal solicitation or No Go, request an exemption).
2. 30 Sep 2001— Release all solicitations for systems to be privatized.
3. 30 Sep 2003— Award all contracts.

Of the 320 systems available to privatize (in FY00, OSD removed OCONUS installations from the privatization process because they are owned by the host nation), 41 have already been through the process. We have found that privatizing utilities is more difficult than we thought. DOD has never attempted this type and scope of program and the learning curve is very steep. Industry also had no experience in this area and its response has been tentative.

One of the first challenges we encountered was the limitation of 10 years (per the FAR) for utility services contracts. To determine long-term benefits and costs, we needed to be able to contract for a longer term. Privatization was not necessarily economical within the first 10 years, yet could be economical if we could adjust our payment for services to a longer time frame, such as 25 to 50 years.

To address this concern, the Army requested Congress to allow for longer-term contracts specifically for utilities privatization efforts. The FY2000 Authorization Act contains authority for DOD to issue privatization contracts for up to 50 years and further authorizes the transfer of real estate to the successful provider. The DOD Office of Counsel supports the use of competitive procedures in selecting the





best value for commercial providers for DOD utility systems.

Despite all the roadblocks, we are making progress. Army is leading the pack and actually has been working on the privatization concept since the early nineties. In July of 2000, GSA selected ACSIM's initiative to "Privatize Army Utility Systems" as the winner of GSA's annual achievement award for Real Property Policy Innovation. This award recognizes innovative, forward-looking Real Property Policy and Management Practices throughout the federal government.

The Army's recent successes include:

#### **Fort Hamilton**

Electric, Natural Gas, Water,  
Wastewater and Storm  
ENRON Federal Energy Systems

#### **Fort Benning**

Electric  
Flint River Cooperative

#### **Stewart Army Subpost**

Natural Gas  
Central Hudson Gas and Electric

#### **Aberdeen Proving Ground**

Water and Wastewater  
City of Aberdeen, Maryland

#### **Fort Sam Houston**

Natural Gas  
City of San Antonio

#### **Camp Parks AFRC**

Water and Wastewater  
Dublin San Ramon Services District

As of the 15 July 2000, OSD Quarterly Report, 41 systems have gone through the utilities privatization process. Thirteen systems have been privatized and 28 have been exempted.

The end game, according to Bill Eng, ACSIM PM for MDW, when asked about the Fort Hamilton success, is that it immediately raises the quality of life for the 1,200 soldiers and their families who live on post at Fort Hamilton. It provides reliable utilities *now*, not in some distant budget in the out years.

Providing reliable and efficient utilities is a Herculean task, especially when you try to measure success one utility system at a time. Looking back to the status quo as described in the *Digest* in 1995, we can now say we have a strategy and a measure of success. But what about the third strategy prong as discussed by General Herndon: Modernize only those utilities that can't be privatized?

Well, the first step in this strategy is to determine those systems that don't make it through the privatization gauntlet. We are faced with finding ways to improve our infrastructure with limited resources. One of those means available to us may be Energy Saving Performance Contracts (ESPC). The object of the ESPC initiative is to partner with industry in modernizing Army energy consuming systems using private sector money. Simply put, under an ESPC contract, a contractor invests in newer and more efficient equipment to reduce our energy costs. The contractor then shares in the savings and recovers his investment through those savings. The exact sharing percentage is spelled out in the contracts. The intent is to provide a win-win situation with the Army saving energy costs and the contractor reaping a portion of the savings in profit.

The Army has used ESPCs for numerous energy saving improvements to installation facilities. Through June 2000, we have awarded 66 ESPC contracts in which private industry has invested \$242 million of its own money.

#### **Other Energy Strategies.**

The Army is making direct investments in modernization of the infrastructure through the DOD funded Energy Conservation Investment Program and O&M Army funded major repair projects for central heating plants. These efforts, combined with installation/MACOM funded maintenance/upgrade programs, provide the means to improve those utility systems and energy consuming components that are not candidates for privatization.

The Utilities Privatization and Energy team is small with a big mission, but we hope that in a future *Public Works Digest* article, perhaps several years from now, we can write: "The second prong of our utilities strategy has been accomplished! We are now working on the third prong."

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*Richard Dubicki works in OACSIM's Facilities and Housing Division.*

## **Memo on Heating, Ventilating and Air Conditioning (HVAC) System Design**

**M**G Milt Hunter, Deputy Commanding General for Military Programs, recently sent out a Memorandum for Commanders, Major Subordinate Commands, to initiate the following requirements on future Army projects:

"Include CEGS-15995 'Commissioning of HVAC Systems' " in all applicable projects. Please note that the effective use of this specification requires active participation of the designer throughout the commissioning process. Participation of the customer throughout the commissioning process should also be strongly encouraged. Districts may want to consider using an independent third party contractor to perform HVAC commissioning to include preparation of plans overseeing of contractor testing and implementation of the commissioning plans.

Recently CEGS-15990 "Testing, Adjusting, and Balancing (TAB) of HVAC Systems" was revised to strengthen the technical and testing procedures as well as improve the enforcement provisions. Designers need to actively participate in the process including preparation and review of TAB plans, rechecking of the required measurements and review of completed TAB reports. Customers should be encouraged to participate, especially in rechecking measurements."

POC is Harry Goradia, 202-761-8622. **PWD**



# "It Takes a TEAM"

by Bob DiMichele

Sometimes it takes a team to get the job done. Whether it's sports or business, the private sector or the public sector, individual capability often needs to mesh with teamwork to reach a goal. That tried and true concept is now being applied to reaching energy savings goals for military installations.

"TEAM" (Total Energy Account Management) services is an innovative approach which awards a "TEAM" task order that allows an Energy Savings Performance Contracting (ESPC) contractor to advise an installation customer on the most cost-effective utility procurement option by using a variety of methodologies. It also allows modification of that task order to add various additional, energy conservation projects in lieu of issuing a new task order for each project.

Energy Savings Performance Contracting uses private sector capital to fund energy conservation efforts in return for long-term profits derived from energy and ancillary savings. "While the Energy Savings Performance Contracting program provides a tool to capture savings and provide funding for efficiency improvements, there are also other government initiatives such as deregulation, privatization, and commercial activities that will have significant impacts on the energy infra-

structure at government facilities," explained Jimmy Haywood, ESPC Fort Bragg team leader at the U.S. Army Engineering and Support Center, Huntsville, Alabama. All of these initiatives impact utility operations to varying degrees. "However, it's nearly impossible to optimize their collective effectiveness when a facility implements them as isolated initiatives," he said.

Because of this challenge, the ESPC contractor at Fort Bragg, North Carolina, Honeywell, teamed with installation staff and Huntsville Center's energy experts to leverage its existing ESPC contract. The original remaining potential for Fort Bragg's contract was \$18 million, but because of the implementation of TEAM services, Fort Bragg now has approximately \$66 million remaining.

The joint effort gave the government the ability to integrate the strategy of a variety of utility initiatives while maintaining the isolated execution channels. This allows Fort Bragg to prepare for deregulation, integrate privatization, fulfill Executive Order 13123 mandates, enhance quality of life improvements, and ultimately, retain control of the infrastructure, according to Haywood.

Huntsville Center awarded the "TEAM" task order for Fort Bragg in February 2000. Under this task order, the contractor is providing all required engineering, management, and technical services for Fort Bragg to procure natural gas.

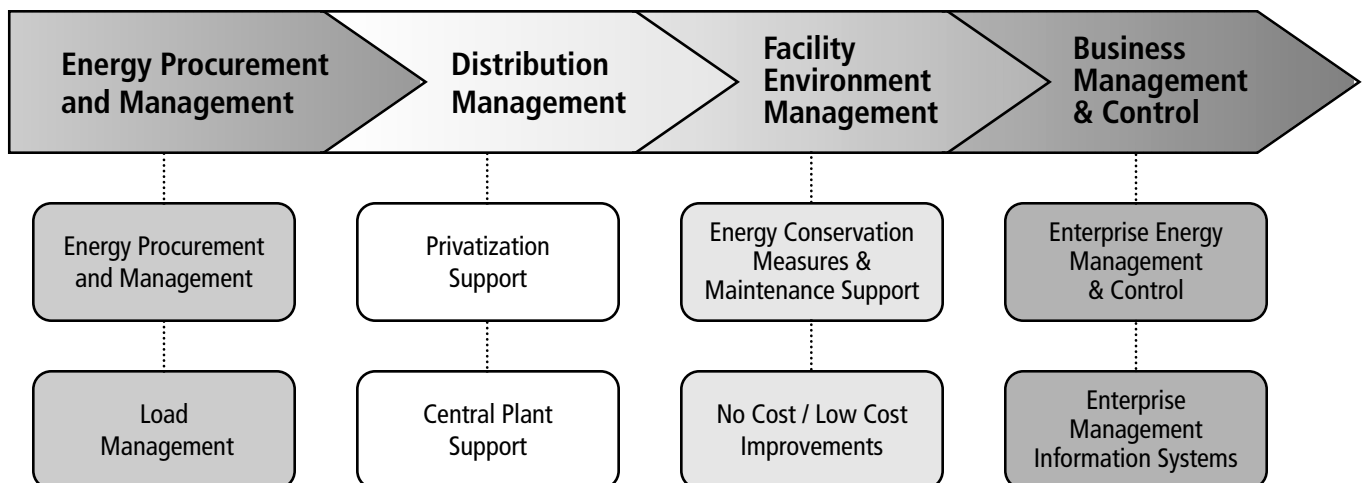
The project has a negotiated implementation cost of \$262,692 and a first-year operation and maintenance cost of \$88,642. The first-year energy savings are \$200,000 and the term is 33 months.

The TEAM Services approach to business has been successful at Fort Bragg for many reasons. The major reason can be attributed to the support provided by the installation commander, the Directorate of Public Works, the ESPC contractor, and other key people in leadership along with a spirit of cooperation among all of the parties involved, according to Haywood.

"That was the start of the concept of Total Energy Account Management services," he said.

"Fort Bragg wants to be the leading edge with innovative ways to be more efficient, said Georges Dib, Fort Bragg energy program manager. "The TEAM program and the three-way partnership will assist the post in achieving its Energy Policy Act reduction goals while improving the environment and working conditions of the people of Fort Bragg and the surrounding communities."

## Energy Procurement and Management



*The TEAM Services approach utilizes an energy supply chain, which consists of several disciplines.*





Honeywell representative Joe Staib added, "TEAM Services works so well at Fort Bragg because the ESPC contractor's interests are aligned with the interests of Fort Bragg. The more we can save, the more we can improve the infrastructure."

The TEAM Services approach utilizes an energy supply chain, which consists of the following disciplines:

- *Energy Procurement and Management:* The management of energy procurement and measurement of energy loads.
- *Distribution Management and Central Plant Support:* Strategic consultation and coordination for utility privatization efforts to ensure privatization efforts are fully integrated with any work the contractor performs and implementation of energy conservation project for central energy plants.
- *Facility Environment Management:* Energy cost saving measures provided by the contractor via demand side management with no cost or low cost improvements.
- *Business Management and Control:* By monitoring energy information, the contractor determines future "trends," manages the energy infrastructure, minimizes risks, and ultimately optimizes program savings.

"By evaluating the energy value chain comprehensively, Honeywell was able to uncover significant additional savings. Additional savings in the ESPC program translate into additional quality of life improvements, and ultimately a better environment for the soldiers," Staib explained.

Haywood added, "By combining or integrating all aspects of the energy chain, one link strengthens the others and the government enhances its potential for maximum savings."

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Bob DiMichele is the public affairs officer for the Huntsville Center.

## How to Implement TEAM Services

- Select an ESPC contractor through coordination with the U.S. Army Engineering and Support Center, Huntsville, Alabama.
- Develop a strategic plan for the installation's energy needs.
- Consider supply side initiatives first.
- Coordinate with the garrison commander and director of public works. (Buy-in from the top down is essential for success.)
- Modify strategic plan, as needed.
- Provide bimonthly updates at team meetings to the installation Energy Team (NOTE: The Energy Team consists of garrison, DPW, Huntsville Center, and contractor representatives from management, technical, contracting, resource management, and legal. These representatives are utilized on an as-needed basis).
- DPW should document coordination with all DPW elements prior to notifying the contractor to proceed with the development of a task order.
- By awarding the TO, the savings generated by the supply side initiative are obligated and made available for disbursement to the contractor. Since only a portion of the savings may be needed to pay the contractor for the effort in achieving the supply side initiative, the contractor is only allowed to bill the government for the portion of work completed.
- Since disbursement of the obligated funds can occur for up to five years, savings generated in any year of the TO can be disbursed for up to five years. Therefore, the contractor is allowed up to five years to bill the government for completed work that was originally included within the scope of work. The "TEAM" task order will be modified to include all of the necessary details for implementation of future work that was introduced in the original TO. After the contracting officer accepts the completion of the work as identified in the modification, the contractor can bill for payment using the previously obligated funds.

### Task Order (TO) Development

- The initial TEAM task order must generate more savings than required to implement it. These "excess" savings are then used as needed to make additional ESPC projects feasible.
- The TO should identify future energy conservation measures that may be implemented by modifying the TO. The TO should identify the potential buildings or areas that will be affected and the type of energy conservation measures that may be implemented (i.e., lighting, HVAC, water conservation, peak shaving, electric motors, etc.). The savings that the TO generates come from energy and maintenance savings that are part of the installation's operation and maintenance funds. These funds typically expire at the end of the fiscal year. The awarded task order obligates these funds.
- Through this ongoing process, the TO will experience multiple modifications. The modifications will comply with the installation's overall strategic plan and document all required financial arrangements to identify the anticipated disbursement of funds.
- The process of modifying a TO continues until the strategic plan is fully implemented.
- If at any time the government decides not to continue this ongoing process, additional modifications will not be issued. **PWD**

*NOTE: Throughout the entire Strategic Planning process, the installation retains control and determines which energy conservation measures to incorporate into the task order.*



# Privatization study at Fort Detrick

Fort Detrick's electrical distribution system is undergoing a privatization feasibility study that may transfer ownership, operation and maintenance and improvement of Army utility systems to municipal, private, local or regional utility companies, said Ted Hahn, chief of installation services' plant operations.

After a system is privatized, the Army is a utility customer, not a utility service provider. Privatizing allows the Army to reallocate scarce civilian manpower and financial resources to the functions that are most critical to the Army's core missions, according to MG R. L. Van Antwerp, Assistant Chief of Staff for Installation Management.

The feasibility study began following a briefing provided by staff members of Booz-Allen and Hamilton, Inc., a consulting firm hired to conduct the study. Utilities privatization is mandated by Congress on all DoD installations to determine if it is more economical to turn utility systems including electrical, natural gas, water and waste water, over to private industry or municipalities, rather than keep them in-house. The Army is leading the way to meet the DoD directive to privatize all systems by September 2003. Thus far, 127 utility systems were privatized. There are currently 494 systems under study.

"The government is trying to get out of the utility business," said Hahn "... because of keeping up with the cost maintenance of aging infrastructure." If Fort Detrick's electrical system meets the criteria and the study stays on track, it could be privatized by August of next year, Hahn said.

Currently, Fort Detrick owns the entire electrical infrastructure, equipment, electrical shops and substations. Five government employees handle all the electrical workload. Just as any

home user, Fort Detrick pays Allegheny Electric Company for its electricity.

If a privatization contract were approved, the entire system would be turned over to an outside company with their own employees, Hahn explained.

Part of the responsibility of the study's contractor, said Joe Alexander of Booz-Allen, is to develop an employee transition plan for Fort Detrick's employees who may be affected. Barry Schmidt, manager of the electrical shop, wants to make sure that his customers receive the same quality service they have been receiving from his employees if someone else takes over the electrical system.

Schmidt said that his customers receive instant response time on a day-to-day basis and during emergencies. "All the employees in the electric shop carry beepers and can be reached 24-hours a day any day in case of emergencies." He worries that if a private company takes over, will that instant response be there?

Schmidt cited the critical missions at Fort Detrick, such as the animal labora-

tories in the medical research facilities and the communication systems that cannot afford to lose power at any time.

Just as its name suggests, the feasibility study looks at the feasibility of privatizing. It takes into account a benefit analysis and risk analysis in addition to performing a life cycle cost analysis. As part of the feasibility study, the contractor is interviewing commanders of tenant unit to determine their requirements and identify any concerns that they have. This will be incorporated into the risk analysis.

Schmidt said there are some exemptions to privatizing installations electrical systems as listed under the 10 U.S.C. 2688, "Utility Systems: Conveyance Authority." Exceptions may be given if the system is uneconomical to privatize. An exemption may be given for "unique health and/or safety requirement" in which ownership of the system by a private utility would substantially impair the mission of the department concerned or would compromise classified operations or property. Only the Secretary of the Army may approve exemptions. So far there have been 28 exceptions given through the Army.

For more information about the privatization study, please contact Ted Hahn at (301) 619-2663. **PWD**



*Ted Hahn, Fort Detrick's chief of plant operations, explains natural gas-saving program. (Photo by Ann Duble)*

## Fort Detrick and DESC partnership saves money

by Ann Duble

For the past two-and-a-half years, Fort Detrick has participated in a partnership program that has saved over \$2 million.

Fort Detrick's natural gas is purchased through a DoD Direct Supply Natural Gas program that saves the post thousands of dollars yearly, says Ted Hahn, installation services' chief of plant operations.

Hahn, who initiated the program at Fort Detrick several years ago, said, "This is a money-saving program that really works!"

Deputy Commander COL James Greenwood said, "I appreciate the creative initiatives our workforce put into their jobs in a time of constrained resources and when we're constantly



# Picatinny and Energy Masters: Teaming up to conserve

by Megan Dwyer and Doug Karnuth

The issuance of Executive Order 13123 was a wake-up call for many federal facilities. Calling for a 35 percent reduction in energy usage from a 1985 baseline by Fiscal Year 2010, the mandate was exactly the motivation many military installations needed to initiate energy conservation projects.

Picatinny Arsenal, an early pioneer in energy conservation, has risen to the challenge of the Army motto, "Conserve Energy with Comfort and Common Sense." To achieve that goal, Picatinny has teamed up with Energy Masters International, a leading energy services company (ESCO).

The first two ECMs focused on upgrading lighting systems and heating, ventilation, and air conditioning, and have provided the arsenal with more than \$450,000 in annual savings. Currently, Energy Masters is completing implementation of its second Energy Conservation Measure (ECM) at Picatinny. They are also developing several follow-on ECMs that should result in additional annual savings of over \$400,000 and enable the Arsenal to attain compliance with Executive Order 13123 by 2010.

The upgrades performed at Picatinny are made possible through an Ener-

gy Savings Performance Contract (ESPC), an innovative federal energy program that allows government facilities to make capital improvements while reducing energy consumption. The cost savings created by a reduction in energy usage pay for upgrades and improvements over a financed contract term. During that term, energy savings are guaranteed by the ESCO, in this case, Energy Masters.

"ESPC revitalizes the energy systems infrastructure," said Doug Karnuth, Senior Project Manager at Energy Masters. "The partnership judiciously leverages resources to provide an efficient, cost-effective energy management program that saves tax dollars."

While the obvious benefit of these capital improvements is energy reduction and the resulting monetary savings, an increase in occupant comfort adds significant value to the project. Picatinny occupants now have better indoor air quality, more uniform room temperatures, and improved overall living conditions.

A spokesperson for Picatinny, Ron Kraus, Director of Public Works, com-

mented on these additional advantages of ESPC: "Our partnership with Energy Masters allows us to improve the

quality of life for workers and residents, operate our energy systems more efficiently, and meet the arsenal's overall mission. At the completion of this project, we will have more comfortable settings for residents and workers, increased trust in the reliability of our energy system, reduced maintenance costs, and the elimination of long periods of time for heating and cooling switchovers."

The Army Materiel Command (AMC) has been very supportive of Picatinny's progressive approach to saving energy. "Picatinny's tremendous leadership in its Public Works Department is striving to improve the arsenal's infrastructure and quality of life for the employees," said Dick Faith, AMC ESPC Program Engineer. "Picatinny is setting a standard through ESPC that Army facilities must strive to emulate."

Faith additionally noted that the arsenal was selected as the AMC winner in the "Organization" category and received the *Federal Energy and Water Management Award* for Fiscal Year 1999. Picatinny also placed in the final five in the *Secretary of the Army Award* and was selected as the Department of Energy winner in the "Army Organization" category.

Energy Masters is a nationally accredited industry leader, providing energy management assistance to military installations nationwide. The company is currently developing and/or implementing projects at over 20 federal facilities.

POC is Frank Langenecker, Project COR, DPW, Picatinny Arsenal, (973) 724-5994 DSN 880, e-mail: flangen@pica.army.mil **PWD**

*Megan Dwyer is a technical writer with EMI. Doug Karnuth is a senior project manager at EMI and the main POC for Picatinny Arsenal on ESPC and energy upgrade projects.*

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looking for the efficiencies. This type of savings offset will help make us more competitive and justify our existence."

Through the savings program, natural gas is purchased through the Defense Energy Support Center (DESC), Fort Belvoir, Virginia, who manage DoD-wide program.

"All the military services and some civilian agencies go through them to buy gas," Hahn said. "That way, they are able to lump all the installations together and buy in bulk which is cheaper."

Fort Detrick still pays Frederick Natural Gas a delivery fee, but the bill or the gas goes to DESC, resulting in a significant savings.

John Crunkilton, Chief of DESC's northeast and central regions, said, "This achievement would not have been possible had it not been for the partnership between Fort Detrick and DESC. As your point of contact, Ted Hahn has played a particularly large role in achieving these savings...."

The major users of this program on Fort Detrick are the boiler and incinerator plants, and post housing, although Hahn said he may expand the program to include other smaller users.

POC is Ted Hahn, (301) 619-2663. **PWD**

*Ann Duble is a public affairs specialist at Fort Detrick.*



# Bid for jet fuel storage area repair sustained

by Michael Organek

**O**n February 10, 1999, the Comptroller General sustained a post-award protest based on the bidder attempting to limit the rights of the government. Here's what happened.

A USACE District issued an invitation for bid (IFB) for the repair and improvement of a jet fuel storage area. The total lump sum price was to include a total of nine "major work items" listed in the IFB. Prices were sought for seven basic items relating to repairs and upgrades at the Pumphouse No.1 site and two options relating to repairs and upgrades at the bulk fuel storage tanks. Item No. 0009, the option item central to this case, involved lowering the high-level shut-off valves on three bulk fuel storage tanks.

Twelve bids were received at bid opening. Company "A" was the low bid, and Company "B" was the second lowest bidder.

The bid submitted by Company A included the following statement, identified as a bid "qualification":

**Bid Item #9 — Tanks will be cleaned and gas free by government before commencement of work.**

The contracting officer rejected Company A's bid as nonresponsive because the statement placed a condition on the bid. In a written notice to Company A, the Contracting Officer cited Federal Acquisition Regulation (FAR) 14.404-2(d), which provides:

[a] bid shall be rejected when the bidder imposes conditions that would modify requirements of the invitation or limit the bidder's liability to the Government, since to allow the bidder to impose such conditions would be prejudicial to other bidders.

Company A responded to the contracting officer with a letter of protest, asserting that the solicitation required award to the lowest bidder, and that the bid qualification could be waived as a minor informality, since there was not a specified condition requiring the tanks be cleaned and gas-free.

A second letter followed the protest from Company A, notifying the con-

tracting officer that the qualification to Bid Item No. 9 was being withdrawn.

After receiving legal and technical counsel, the contracting officer determined Company A should be allowed to delete the qualification from its bid because the condition was one of form, not substance. (See FAR 14.405). This decision was based on a finding that the qualification did not make Company A nonresponsive, because the contract specifications did not specifically require work to "clean" the tanks and make them "gas-free."

Accordingly, the award was made to Company A, and Company B filed its GAO protest.

The Comptroller General sustained the post-award protest by Company B, concluding that the awardee's bid was nonresponsive because it:

- Modified material terms of the solicitation.
- Limited the contractor's liability to the government.
- Limited the rights of the government under the contract.

The Comptroller General stated at the outset of the legal analysis that to be responsive and considered for award, a bid must contain an unequivocal offer to perform, without exception, in total conformance with the material items of the solicitation. The purpose for this requirement is to deny individual bidders the opportunity to reserve rights or immunities that are not extended to all bidders by the conditions and specifications advertised in the IFB. This means a bid must be rejected if the bidder imposes conditions that would modify material requirements of the invitation or limit the government's rights under any contract clause. In addition, the Comptroller General noted that a bid which is facially nonresponsive cannot be made responsive by post-bid opening clarifications or corrections.

The Comptroller General analysis turned to the instructions provided in the IFB for performance of Item No. 9,

which tasked "lowering existing high level alarm valves for three of the above ground storage tanks." It also stated that the contractor would be working in an area with significant hazardous

environmental. In light of the safety hazards, it was noted in the Summary of Work that special attention should be given to the "vapor-freeing of existing fuel components." The term "gas-free" in Company A's bid qualification can reasonably be interpreted as an attempt to pass the burden of ensuring compliance to the government, which is clearly inconsistent with the IFB. In other words, as the qualification increased the government's liability and decreased that of Company A, accordingly.

The Comptroller General rejected that argument, focusing on the fact that the bid qualification, which made work contingent upon the government cleaning the tanks and making them gas-free, resulted in a conditioned bid that created obligations on the government, inconsistent with the IFB. Upon conclusion of its detailed analysis of the facts, the Comptroller General held that the qualifying terms of Company A's bid created an opportunity for Company A to correct or withdraw its bid, giving it a competitive advantage.

The Comptroller General concluded that because the condition alters the legal relationship between the agency and the contractor, it is a matter of substance that cannot be waived to make the bid responsive. Moreover, the Comptroller General refused to accept Company A's low bid price as an argument for waiver, stating that "the possible monetary savings under a particular contract does not outweigh the importance of maintaining the integrity of the competitive bidding system by rejecting nonresponsive bids."

Finally, the Comptroller General recommended that the District terminate Company A's contract for convenience and award a contract under the IFB to Company B, if appropriate. A recommendation was also made for the District to pay Company B's protest costs and attorney fees.

The lesson learned in this case is that the Contracting Officer originally





# New Legal opinion issued on applicability of A-76 and ESPC

by Regina Larrabee

Several federal employee groups have asserted that Office of Management & Budget Circular A76 (A-76)

procedures must be applied to the Energy Savings Performance Contract (ESPC) process, particularly in those instances when ESPCs result in the displacement of current Federal employees. Attempts to apply the A-76 process to ESPCs have resulted in long delays in awarding the energy savings contracts. To resolve this problem, the ACSIM Facilities and Housing Directorate turned to the Army Office of the Judge Advocate General (OTJAG).

On 30 May 2000, the Army OTJAG issued a legal opinion on the relationship between ESPC authorized by 42 United States Code (USC) 8287 and the requirements of Office of Management & Budget (OMB) Circular A-76.

The opinion was that A-76 does not apply at all to the ESPC process for the following two reasons:

**1** Energy Savings Performance Contracts are not "Recurring Commercial Activities" within the meaning of the A-76 Supplemental Handbook.

Energy savings projects performed under ESPCs are not recurring require-

ments. The energy savings measures or equipment are installed once, not repetitively. While there is a requirement for an annual measurement of the energy savings, to determine the costs the contractor has earned, this function is not the primary purpose of the contract. Since ESPC projects are not recurring commercial activities, there is no obligation to follow any of the procedures in A-76.

**2** 42 US Code 8287 created independent authority for ESPC contracting in order to achieve energy savings.

The passage of 42 USC 8287 was a clear indication that Congress did not intend to bring these projects under the

purview of A-76. Since the contractor is required to give a guarantee, and is responsible, by statute, for the main-

tenance and repair of the equipment, as his payment depends on compliance with the guarantee, there is no practical way to split this responsibility.

Please visit the ACSIM website (<http://www.hqda.army.mil/acsimweb/fd/policy/energycur.htm>) for the complete text of the legal opinion. If you wish to discuss the issue further, please contact Alfred E. Moreau, Attorney Advisor, Contract Law Division, at (703) 588-6754.

POC is Regina Larrabee, (703) 428-8030 DSN 328, e-mail: [regina.larrabee@hqda.army.mil](mailto:regina.larrabee@hqda.army.mil) **PWD**

*Regina Larrabee is the ACSIM ESPC Program Manager.*

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made the correct determination to reject Company A's bid as nonresponsive. The IFB specifications and Statement of Work provided clear and reasonable requirements for the tank valve's upgrade, the liability for which was transferred to the government by the qualifying statement. Company A should not have been allowed to waive its qualifying statement after bid opening.

POC is Michael Organek, (202) 761-5449, CEPR-O, e-mail: [michael.organek@hq02.usace.army.mil](mailto:michael.organek@hq02.usace.army.mil) **PWD**

*Michael Organek works in the Office of the Principal Assistant Responsible for Contracting at HQUSACE.*

## Vice President Gore announces new energy efficiency standards for water heaters

Earlier this year, vice President Al Gore announced proposed standards to improve the energy efficiency of residential water heaters that would result in consumer savings of more than \$23 billion in energy over the next two decades. The standards as currently drafted are also expected to reduce greenhouse gas emissions by 36 million metric tons over the next 20 years.

"As a nation, we spend approximately \$20 billion to heat water each year, accounting for about 14 percent of all household energy consumed," Vice President Gore said. "These new standards will help save consumers money on energy bills and reduce greenhouse gases and other pollution."

Under the proposed rule, all new residential water heaters, whether manufactured in the US or imported, would need to meet the new standards by the beginning of 2004. Over the life of the new water heaters, the average consumer will save more than \$100 in energy costs.

The water heater standards announced today are part of the Department of Energy's

Lighting and Appliance Standards Program. DOE expects to issue energy efficiency rules for clothes washers, fluorescent lamp ballasts, residential central air conditioners, and commercial heating and air conditioning, which would nearly triple the energy savings announced today.

"These efforts reflect our commitment to use the latest technologies to promote energy security, consumer savings and environmental protection," the Vice President said.

By 2020, the proposed water heater standards would reduce electricity use annually by the equivalent of what is generated in a year by three large coal-fired power plants.

The proposed standards, published in the Federal Register on April 28, 2000, are based on a detailed economic analysis performed by the Department of Energy. DOE held a public hearing on the standards last June and expects to issue a final rule by the end of this year.

For more information, visit the DOE Clean Energy for the 21st Century web page at [www.eren.doe.gov/cleanenergy](http://www.eren.doe.gov/cleanenergy). **PWD**



## Free CD offers One-Stop commissioning resource

by Dana Finney

**D**PWs who must do commissioning work on building energy systems no longer have to search for guidance from hundreds of sources. A new CD ROM being produced at the Construction Engineering Research Laboratory (CERL) puts all of that information at your fingertips in an easy-to-use commissioning "encyclopedia."

Today's buildings consist of complex energy systems with advanced controls and system interactions. When everything isn't working as designed, the result is discomfort for occupants, which takes a toll on morale and productivity. Further, systems that are not working properly waste large amounts of energy.

Commissioning (Cx) is a process to ensure that energy systems in a new building function as designed while recommissioning (ReCx) involves a tune-up to improve system performance at existing facilities. By investing about \$0.30/square foot for commissioning a new building, energy savings from 20 to 50% can accrue. ReCx costs between

\$0.05/square foot and \$0.40/square foot and can save 5-20% in energy use at older buildings. Improved comfort can improve worker performance and reduce complaints to the DPW.

To perform or specify this work, DPWs typically have had to consult many different resources — a time-consuming process. The "Commissionpedia" CD provides an electronic sourcebook of tools, specifications, regulations, publications, case studies, and other needed information. The material is in Adobe Acrobat format and can be viewed with Acrobat Reader software, which is also provided on the CD.

The Commissionpedia CD will be distributed at upcoming HVAC PROSPECT courses conducted by CERL. To get a free copy, contact Dahtzen Chu at CERL, (217) 373-6784, toll-free 800-USA-CERL, ext. 6784, or email [d-chu@cecer.army.mil](mailto:d-chu@cecer.army.mil) **PWD**

*Dana Finney is the Chief of the Public Affairs Office at CERL.*

## Corps website for project info

**T**he Corps of Engineers has created a collaborative website that provides project information on all of our customer's projects. To access it on the Internet, type <http://ppds.usace.army.mil>.


The PPDS website is intended for use by project team members (Corps, customers, A-Es, contractors, etc.), supervisory chain, headquarters and anyone else who has a need to collaborate information about any project administered by the Corps of Engineers.

Information can be obtained in PPDS by following one of two paths. For the first one, on the first page of PPDS, click on the Division of Interest, then the District of Interest. Select from the various sorts to get to the Project Data Sheet for the Project of Interest. Project costs, schedules, scope, issues, team members, photos and other documentation can be found for each project. Sorts can also be selected by installation, command, program or project manager.

The second path provides more of a total roll-up of projects by programs or customers. To get this information, click on USACE Headquarters on the first page of PPDS, then on the left click CMR (Command Management Review), then Military CMR Data. Corps customers would then check "All Projects" on the right, and pick the appropriate sorts.

PPDS is being used to save manpower when briefings are given concerning projects. Agendas listing the projects to be discussed are linked to the PPDS website to get current project information. Additional briefing slides are no longer required.

Corps employees have had access to PPDS on our Intranet for a few months. Military customers, those with a .mil address, now have access to PPDS on a separate server.

 POC is Bill Stein, CESAD-PM-M, (404) 562-5210, e-mail: [steinw@sad02.sad.usace.army.mil](mailto:steinw@sad02.sad.usace.army.mil) **PWD**



*New CD gives quick access to guidance on commissioning or recommissioning energy systems.*





# New method “ATTACCs” guesswork in managing training lands

by Dana Finney

A method to show military training impact on lands has helped the Louisiana Army National Guard (LAARNG) site a new maneuver area at Camp Beauregard, LA. Using the Army Training and Testing Area Carrying Capacity (ATTACC) tools, land managers chose 277 acres that can best support training requirements with least impact on the land and lowest cost to restore.

ATTACC is one of several tools being developed at the Construction Engineering Research Laboratory (CERL) to help land managers implement the Integrated Training Area Management (ITAM) program. “We needed a scientific means to know a training area’s carrying capacity,” said MAJ Michael Tarpley, LAARNG ITAM Coordinator. “Without that, no one has a complete ITAM program.”

Training lands at Camp Beauregard are used to train Louisiana Guard combat engineer units prior to a rotation at the National Training Center at Fort Irwin, CA. LAARNG conducts year-round training and in the past had used maneuver areas at nearby Fort Polk. However, the growing competition for Polk’s training areas prompted the Guard to develop maneuver areas on its own lands.

MAJ Tarpley led a team that designed and built the first-ever mechanized maneuver area at Camp Beauregard. One of the team’s goals was to choose a site for the training area using ITAM’s principles. ITAM is a land monitoring and management program developed at CERL which is now mandated for all Defense installations. It includes sub-programs such as environmental awareness, threatened and endangered species management, Land-Condition Trend Analysis (LCTA), and others. ITAM’s purpose is to ensure training capability and provide a realistic landscape — with least impact on the environment.

“ITAM managers need a simple,

straightforward method to determine how much impact an area can take before you should take it out of service and rehabilitate,” said Tarpley. “That’s what ATTACC does.”

According to Alan Anderson, one of the program’s developers at CERL, ATTACC is actually a set of tools and procedures designed to help all the players in the ITAM process. “The people who are ITAM coordinators, GIS [geographic information system] specialists, and LCTA managers are often located in separate places, and they also use different types of computer tools,” he said. “ATTACC has separate software programs that support each of these different parts of ITAM.”

The bottom line that ATTACC provides land managers is called the “training area carrying capacity,” which is measured in Maneuver Impact Miles (MIMs). “ATTACC gives us a threshold value in MIMs for the amount of training we can allow on a particular area. When we get to that point, we can go out to the site and inspect it to see how much damage was actually sustained. In this way, we can validate what ATTACC tells us and adjust higher or lower, depending on factors such as

more or less rainfall in a year,” Tarpley said.

Several pieces of information go into an ATTACC analysis. Most of it comes from the other sub-elements of ITAM. Data from the installation’s GIS layers and LCTA program (for example, rainfall, soil type, erosion status, slope) are used to compute the Universal Soil Loss Equation, which feeds ATTACC. Training intensity is captured in the Range Facility Management Scheduling System (RFMSS). Budget information comes from another system, and so on.

“ATTACC complements the other parts of ITAM,” said Tarpley. “An area’s training capacity is essential to connect the other components into a complete training land management tool. Without knowing capacity, we can only guess the

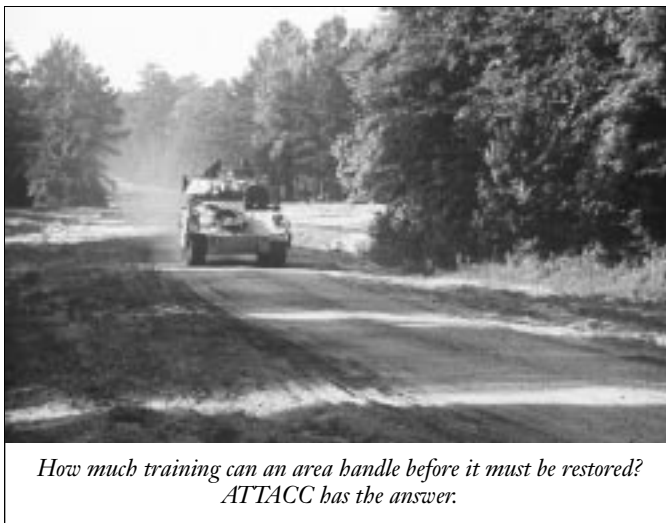
extent to which troops can safely and wisely use the land.

“All this sounds complicated when you hear words like ‘equation’ and ‘model,’ but ATTACC is really very simple and straightforward to use,” he added. “The program does the calculations.”

Besides providing a way to assess training impact, ATTACC is a useful planning tool, according to Anderson. “The results tell you not only that the land area is OK to use, but also shows how much it will cost to maintain it. The goal is to choose a site that has the best impact resistance and the lowest cost revegetation needs,” he said.

LAARNG next plans to use ATTACC to design another maneuver area that will support battalion-sized armored training. CERL, in partnership with the Office of the Deputy Chief of Staff (Operations) and the Army Environmental Center, continues to develop ATTACC for use in other geographic regions.

For more information, contact Alan Anderson at CERL, (217) 352-6511, ext. 6390, a-anderson@cecer.army.mil, or MAJ Mike Tarpley at LAARNG, (318) 641-5773. **PWD**



*How much training can an area handle before it must be restored?  
ATTACC has the answer.*

# Installation Support Division— a change in location and focus

by Alexandra K. Stakhiv

In 1999, the Directorate of Military Programs underwent a major reengineering effort, which consisted primarily of streamlining internal organizations to improve service to installations. Renamed the Office of the Deputy Commanding General for Military Programs, it now focuses on the total life cycle of facilities, not just design and construction. The thrust of this reengineering effort was to ensure that life cycle management of installation facilities and infrastructure is adequately supported.

The Office of the Deputy Commanding General for Military Programs has reduced the number of people on its staff, but, at the same time, increased support to continuing operations and maintenance support for installations. The strategy is to shape installation policy and work closely with the Office of the Assistant Chief of Staff for Installation Management (OACSIM) to enhance support to installation commanders.

## ISD's mission and focus

In August 1999, the Installation Support Center (ISC), formerly Center for Public Works (CPW), was reengineered into the Office of the Deputy Commanding General for Military Programs as the Installation Support Division (ISD), a Headquarters USACE element.

Our primary mission is to:

- Provide HQUSACE staff support
- Direct real property facilities management and installation support activities for the Directorate of Military Programs.
- Perform related services for the Army and Assistant Chief of Staff for Installation Management.

Within the ISD, there are currently 42 people working on your behalf to ensure that key technical services provided by USACE have the right policy and program backup.

This includes everything from master planning and the Integrated Facilities System to business processes, engineering operations and even the *Public Works Digest*.

All ISD personnel recently relocated to 441 G Street, NW, in Washington, DC. The entire Corps Headquarters, including ISD, now occupies the Third Floor of the GAO

Building. Our new telephone numbers appear on the following page.

As one of four divisions under the Deputy Commanding General for Military Programs, the Installation Support Division is regrouped into three branches, the Installation Support Policy Branch, the Planning and Real Property Branch, and the Business Systems Branch.

## Installation Support Policy Branch

The Installation Support Policy Branch sets priorities and determines the strategic goals and objectives for the USACE Installation Support Program.

As the proponent for Installation Support, this branch helps to complete the circle of seamless support with the installations. As the privatization program manager, this branch develops utilities acquisition and sales and utilities contracting policy for the entire Army. It organizes and carries out Command visits not only to inspect, but to provide assistance on-the-spot, through referral or other means of support in areas specified by USACE Divisions.

The *Public Works Digest*, housed in the branch, continues in its dedication to helping

you promote your success stories and lessons learned and publicizing new technologies, policy changes and available training.



Kristine Allaman, ISD Chief



George Braun, ISD Deputy Chief

## Planning and Real Property Branch

The Planning and Real Property Branch is responsible for a variety of activities related to the management of Army real property including master planning, space management, real property classification, and use, disposition and maintenance of the real property data.

This branch is the proponent for or assists the HQDA proponent in developing policy and guidance, tools and implementation plans in these areas, responding to governmental initiatives like the Chief Financial Officer Act, CADD/GIS use, or “sustainable planning.”

In addition, it is the proponent for formal training, providing additional information in the form of conference presentations, newsletters and a web page. It also maintains oversight of the Army real property inventory through data quality assurance and quality control.

The McKinney Homeless Assistance Act requires the Army to make all unutilized, underutilized or excess facilities available to others, including homeless providers, prior to demolition. As the Army program manager for the McKinney Act, this branch coordinates submissions of identified excess facilities with the Department of Housing and Urban Development and the Department of Health and Human Services.

## Business Systems Branch

The Business Systems Branch is the program manager for a myriad of installation support programs. These include the Integrated Facilities System/Headquarters Integrated Facilities System (IFS/HQIFS), Executive Information System/Headquarters Executive Information System (EIS/HQEIS), Programming Administration and Execution System (PAX), Defense Utility Energy Reporting System/Revised Army DUERS Data System (DUERS/RADDS), Army Stationing Installation Plan/Army Criteria Tracking Systems (ASIP/ACTS), Facilities Planning System (FPS), and Real Property Planning and Analysis Systems (RPLANS).

This branch works with the OACSIM on program management of RPMA information analysis and strategic planning for installation business systems improvements to better support the Army Strategic Plan. It also supports the OACSIM in the development and implementation of the Installation Status Report, Parts 1 (Facilities) and 3 (Services) Standards. **PWD**

## ISD Phone Numbers

### Installation Support Division (CEMP-I)

Installation Support Division (CEMP-I)	Phone	DSN
Chief—Allaman, Kristine	761-5763	763
Deputy Chief—Braun, George	761-5764	763
Admin—Campbell, Jackyee	761-5765	763

### Installation Support Policy Branch (CEMP-IS)

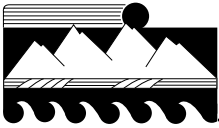
Chief—Kishiyama, Michael	761-5777	763
Zayas, Rafael	761-5773	763
Almquist, Pete	761-5775	763
Reid, Fred	761-5774	763
Elder, Milt	761-5769	763
Davis, Ed	761-5770	763
Kastle, Mike	761-5771	763
Love, Steve (On Developmental Assignment)	761-5772	763
Stakhiv, Alex	761-5778	763
Nichols, Bob	761-5844	763
Velasquez, Maia Kingman	428-7947	328
Emmerling, Don	761-5767	763
Williams, Bridgette	761-5779	763

### Planning Branch (CEMP-IP)

Chief—Reynolds, Steve	761-5786	763
Zekert, Jerry	761-5789	763
Swofford, Stan	761-0441	763
Daley, Dick	761-5776	763
Matsui, Claude	761-5750	763
Evans, O.W.	761-5787	763
Gordon Velasco	761-8817	763
Wiant, Rik	761-5788	763
Holste, Jeff	761-5737	763
Landgraff, Paul	761-5749	763
Beaucham, Ron	761-5730	763
Edwards, Mike	761-5731	763
Yo, Sang	761-5641	763

### Business Systems Branch (CEMP-IB)

Chief—Vacant	761-5780	763
Fuller, Darlene	761-5782	763
Rice, Mike	761-8918	763
Vajda, Anthony	761-5783	763
Grayson, Stewart	761-5784	763
Crambo, Bill	761-5781	763
Ott, James	761-5848	763
King, Jeralyn	761-5550	763
Orgel, Jeff	761-5847	763
Jackson, Andrew	761-5849	763



## Fort Carson washes vehicles and conserves water

by Richard Pilatzke

In the western United States, water is typically scarce and expensive. A unique part of any pollution prevention program should be conservation of water. Fort Carson, a major U.S. Army Forces Command Installation located in Colorado, is home to 15,000 active duty military troops and some 4,000 tactical vehicles. Washing these vehicles after military training exercises is a major task.

Fort Carson has operated its recycling vehicle wash facility, the Central Vehicle Wash Facility (CVWF) for over 11 years and has saved over 3.0 billion gallons of water. Annual amounts from potable water savings are \$400,000 per year and associated wastewater treatment savings are \$600,000 per year. Manpower savings alone on this facility amount to millions of dollars per year.

Maintaining and cleaning tactical vehicles is vital to Fort Carson's primary mission, which is the training, mobilization, deployment, and sustainment of combat-ready forces. The CVWF is a closed-loop recycling water treatment facility that has little or no impact on Fort Carson's wastewater treatment systems.

The facility has a storage capacity of 9.6 million gallons of water and in a full day of use may pump 10 million gallons for use. After use, the water is run through a treatment system consisting of grit chambers, sand filters, oil skimmers and aeration basins and is then available for reuse.

A recent addition to the facility was 200 grass carp, which are currently living in the aeration basins to control aquatic vegetation. The facility has operated for up to two years with no significant addition of water; the 15 inches of rainfall the post receives is adequate to make up for evaporation losses.

The CVWF has washed as many as 491 vehicles in a single day and even washes snowplows from the nearby Interstate Highway.

Prior to the construction of the cur-

rent Central Vehicle Wash Facility, Fort Carson washed vehicles on motor pool washracks located at individual vehicle maintenance facilities on the installation. This method was time-intensive and used large amounts of water due to the low pressure hoses on those washracks. It also generated large amounts of wastewater to be treated.

The first CVWF built on Fort Carson was a miserable failure. It was constructed in 1979 and never operated well. One of the first CVWFs built for the Army, it was operated until 1989, when the current one was built. As soon as the current facility went on line, there was an immediate drop in water consumption on Fort Carson of about 400 million gallons per year. It pumps some 200 million gallons of water per year for washing vehicles and probably generates 10,000 vehicle washes per year. Over its lifetime, it has generated more than 3 billion gallons of water savings. The 200 million gallons actually used equates

to potable water savings of approximately twice that amount, or 400 million gallons per year. This is primarily due to the efficiency of

the CVWF for vehicle washing with high pressure water.

Operational controls on the CVWF are vitally important to its efficient operation. Fort Carson has developed specific regulations dealing with the operation and scheduling of the facility. No oil is allowed to be discharged from a vehicle at the CVWF and no soaps are allowed to be used in it. It is operated by certified wastewater operators, even though there are no requirements for them at the facility.

A CVWF should be considered an integral part of any installation's wastewater treatment system. It contains many of the same treatment elements as other wastewater facilities.

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*Richard Pilatzke is the Water Program Manager at Fort Carson, Colorado.*



*Bradley Fighting Vehicle enters 'bird bath' at Central Vehicle Wash facility for cleaning.  
(Photo by Susan C. Galentine.)*



# Guaranteed Fixed Price Remediation contracts at BRAC installations

by Jennifer Allaire

**G**uaranteed Fixed Price Remediation (GFPR) is a new method of contracting for environmental remediation. Under a GFPR contract, a private firm ("contractor") agrees to clean up an installation at a predetermined price. Typically, if the cost of the cleanup exceeds the contracted price, the government will not incur the additional expense. Instead, the contractor purchases environmental insurance to cover the risks associated with environmental remediation.

The Department of the Army recently piloted GFPR projects for the remediation of Rio Vista Army Reserve Center, California, and Camp Pedricktown, New Jersey, which were closed as a result of the 1995 Base Realignment and Closure actions.

A "Cost Plus Fee Contract" is the standard method of contracting employed by the government. This method subjects the government to possible price increases when the actual cost of remediation exceeds the negotiated amount.

An increase in cost can result from things such as requests for additional sampling by the regulators or the discovery of additional contaminants on the property. In this scenario, the Army bears the risk of a direct price increase and any corresponding costs, such as delays. Under GFPR contracts, the contractors bear the risk of these price increases. In order to level the playing field in negotiations as to the fixed price and the scope of the remediation, site characterization will typically be completed by the government.

The site characterization data enables the Army to establish a baseline for the areas requiring environmental evalua-

**P**ollution prevention opportunities can be found almost anywhere military operations are occurring. One not so obvious place is the installation wastewater treatment facility.

Wastewater treatment traditionally uses gaseous chlorine in large quantities for disinfection of discharged wastewater. Additionally, most treatment facilities must treat their discharge with gaseous sulfur dioxide prior to discharge to reduce the chlorine concentrations to levels where they will not be harmful to aquatic life. Chlorine gas is an extremely hazardous substance that is a deadly poison and requires extensive training and safety equipment. Every year, accidental releases of chlorine gas injure and sometimes kill people exposed to the gas.

Minimizing hazardous chemical use was very important in the design of Fort Carson's new sewage treatment plant since it was first proposed more than seven years ago. The new plant has reduced use of combined sulfur dioxide and chlorine by 68 percent and chlorine alone by 74 percent in its first full year of operation in 1999. This combined reduction was accomplished by eliminating

## Eliminating chlorine use in wastewater

by Richard Pilatzke

most of the use of chlorine for disinfection and replacing it with a disinfection process using ultraviolet radiation.

Chlorine use in the plant declined from

17,740 lbs. in 1998 to only 4,573 lbs. in 1999. Sulfur dioxide use decreased in the same time period from 12,852 lbs. to 5,182 lbs.

Further reductions are expected, as the 1999 data included plant startup and three months of operation before the ultraviolet disinfection equipment was fully operational. Additional UV equipment is currently being installed and total reductions of chlorine and sulfur dioxide use are expected to be even greater.

The Fort Carson sewage treatment plant is currently rated at 3.02 million gallons per day capacity and treats an average of about 2.1 million gallons per day annually. It relies on UV disinfection for its primary disinfection capacity. High flows during storm events do need to have chlorine/sulfur dioxide treatment to be adequately treated.

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tion. This data is also used to prepare an Independent Government Cost Estimate for comparison with the contractor's bid.

Installations that enter GFPR contracts have the potential to realize significant benefits. By tapping into the private sector efficiencies, created by insurance coverage and incentive-based profit maximizing, the government could realize considerable savings. The shift of liability for unforeseen environmental conditions caps the Army's environmental liability, associated with the cleanup, and encourages the use of alternative technologies. The result is faster cleanups that are tied to reuse, with decreased liability and costs.

In 1999, U.S. Army Forces Command requested that the U.S. General Services Administration let a fixed price remediation contract for the remainder of the cleanup at the Rio Vista Army Reserve Center. The terms of the contract included a guarantee from the contractor for an additional \$5 million, to cover any additional costs resulting from unfore-

seen environmental conditions. The contract also made regulatory closure a contract deliverable. The combination of this, with the contractor's provision of program management support and recommendation of alternative technologies, will increase the efficiency of the entire process.

Camp Pedricktown soon followed Rio Vista's lead, letting a GFPR contract with similar terms and guarantees.

The projected benefit from GFPR contracting will be realized over time, as the number of installations with GFPR contracts are remediated and transferred to the local communities for reuse. Considering GFPR contracts for more installations will allow the Army to minimize its risks, while saving time and money.

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# New Chesapeake Bay agreement signed

by Leslie J. Reliford

Last June, the plan for the next decade of Chesapeake Bay watershed protection was approved by three state governors, the District of Columbia mayor and the top Environmental Protection Agency official during a ceremony on the Bay in Anne Arundel County, Maryland.

"Chesapeake 2000, A Watershed Partnership," renews the Chesapeake Bay Agreement, a 1983 pact affecting 19 Army installations and 17 lakes administered by the U.S. Army Corps of Engineers within the watershed. EPA Administrator Carol Browner signed the intergovernmental agreement on behalf of all federal agencies.

Other signers included Maryland Governor Parris Glendening, Virginia Governor James Gilmore, Pennsylvania Governor Tom Ridge, District of

Columbia Mayor Anthony Williams and Chesapeake Bay Commission Chairman Bill Boiling. These six comprise the Chesapeake Bay Executive Council.

The new agreement's principal focus is to improve the quality of water adequately enough to maintain the health of the Chesapeake Bay's inhabitants and its tidal tributaries now and in the future, according to a Chesapeake Bay Program release.

Prior to the 1983 Chesapeake Bay Agreement, the Department of Defense had paid more than \$180 million for restoration projects in the Chesapeake Bay watershed. "Army installations along the Chesapeake Bay are continuously committed to restoration and protection of the bay and its habitat as part of the army training and readiness mission," said Cynthia Houston, senior consultant to the National Outreach Team for the U. S. Army Environmental Center (USAEC) Public Affairs Office.

"The agreement that was signed this morning reflects a shared vision for the restoration and protection of one of our nations most wonderful natural resources, the Chesapeake Bay," said Browner.

Some examples of the Army activities at the installation level include submerged aquatic vegetation (SAV) mapping and research, habitat restoration, stormwater pollution prevention planning, riparian forest buffer planting and the Army's Integrated Training Area Management (ITAM) program.

There are 16 species of SAV commonly found in the Chesapeake Bay or nearby waters. The vegetation plays an



*Two young volunteers join Army staff and others to plant shrubs, flowers and grasses native to the Chesapeake Bay region in Fort Meade's BayScapes rain garden.*

important ecological role to the aquatic environment by providing food and habitat, producing oxygen, filtering and trapping sediment, protecting shorelines from erosion, and removing excess nutrients, thus preventing the fueling of unwanted algae growth.

"[Army installations have] done numerous water quality programs, sedimentation programs, soil erosion programs, and numerous programs within their installations that have supported the Chesapeake Bay restoration," said JanMichael Graine, Chesapeake Bay coordinator for USAEC. "We have been a part of the Chesapeake Bay Program and the restoration and protection of the bay since the beginning."

SAV experts from USAEC research vegetation beds at Aberdeen Proving Ground, Maryland. In monitoring existing beds and mapping new ones, researchers use the Proving Ground's SAV to determine the current health of the Bay, and can help to predict its status in the future.

In support of area habitat restoration is the planting of BayScapes. BayScapes promote a return to a more natural Chesapeake Bay landscape, by featuring mostly native plants best suited for local soil, sunlight and water conditions. Fort Meade, Maryland, in conjunction with the U. S. Fish and Wildlife Service, is creating BayScapes throughout



*The signing ceremony was an opportunity for Carol Browner, Environmental Protection Agency administrator, to discuss the importance of the bay with elected officials such as D.C. Mayor Anthony Williams.*





its lands. "Bayscapes are a great idea that is still maturing," said William Harmeyer, of Fort Meade's Environmental Management Office. "The Bayscape site is a demonstration site where public education and awareness are key, and Meade is planning to create an approximately 1,000 square foot site in October."

Bayscaping can also enhance Army training and readiness by affecting soldiers' well-being, according to Harmeyer. "In order for troops to be ready, they must be healthy from having a healthy watershed, clean air, good trees and a place their family can call home — as well as a healthy environment worth protecting."

All of Fort A.P. Hill's more than 75,000 acres are contributors to the Chesapeake Bay watershed and are drained by the Rappahannock and Mattaponi River systems. Located on the bay in Virginia, the fort's integrated training area practices include the development and implementation of an integrated Natural Resources Management Plan (INRMP).

According to Tim Southard, Chief of the post's Natural Resources Branch, the installation actively supports the goals of the Chesapeake Bay Program through a variety of programs, facility and procedural upgrades.

The INRMP helps guide installation's natural resources program in the areas of forestry, land management, outdoor recreation, and fish and wildlife and is critical in combining the needs of military training with resource conservation goals.

Fort A.P. Hill is also a leading installation in the Army in using Geographical Information Systems to create natural resources information that can be used on training maps, protecting Bay resources during military exercises.

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## St. Louis District establishes Nation's first Stream Mitigation Bank

by Phil Brown

**W**hat is a mitigation bank? A mitigation bank is a tool utilized by the U.S. Army Corps of Engineers Regulatory Program to restore, create, enhance and preserve wetlands for compensatory mitigation in advance of impacts to wetlands from development. Typically mitigation banks are set up as large blocks of wetlands to replace wetlands lost due to development.

When anyone fills or destroys a wetland, a Section 404 permit under the Clean Water Act must first be obtained from the Corps of Engineers. When a wetland permit is granted by the Corps of Engineers, the permittee impacting the wetland is generally required to replace these lost wetlands, which is known as compensatory mitigation.

However, the Corps of Engineers does not only regulate impacts to wetlands, it also regulates impacts to what is referred to as Waters of the United States (i.e., ponds, lakes, and streams). The impacts to Waters of the United States also require mitigation. This is where the concept of banking can excel.

Directed by federal guidance released in 1995, the U.S. Army Corps of Engineers coordinates with developers to "bank lands" for aquatic resources impacts. Not only does banking compensate for aquatic resource losses, but it also provides developers an efficient method to practically and economically mitigate for small wetland impacts. The banking initiative offers an efficient tool to the regulatory process.

Though sometimes burdensome, compensating for wetland impacts is a relatively straightforward task. However, compensating for stream impacts is a difficult task to address. For the most part, creating a new stream to replace an impacted or lost stream is not a viable option. Therefore, the only option to mitigate for the permitted impacts is to take an existing stream in a degraded state, and restore or enhance it. However, this can be a very difficult task. As such, the St. Louis District has worked to create a stream mitigation project under the guidance of mitigation banking.

At the national level, there are over 150 existing wetland mitigation banks, three within the St. Louis District. However, only a couple of Corps Districts have pursued developing a stream mitigation bank. In a partnering effort with the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Missouri Department of Conservation, Missouri Department of Natural Resources, the Consultant and Bank Sponsor Mr. Don Breckenridge, the Fox Creek Stream Mitigation Bank in the St. Louis District has been approved, making it the first stream mitigation bank in the country.

The stream bank is located along the border of St. Louis and Franklin Counties. Even though the Missouri Department of Conservation lists Fox Creek as high-quality urban stream, the portion of Fox Creek that is enrolled under this banking initiative is in a severely degraded state.

The stream bank consists of approximately three miles of Fox Creek from Interstate 44 to its confluence with the Meramec River. Developmental encroachment at this portion of Fox Creek could compromise the integrity for the entire stream. As such, the stream bank will have a minimum 100-foot corridor of trees replaced along both banks of the stream, with some portions of the corridor reaching 400-feet. There will be additional in-stream structures for stabilization purposes, and upland waterway enhancement by revegetation of warm and cool season grasses.

If successful, this stream mitigation bank will provide many environmental benefits. It could also be the start of many other similar projects in the St. Louis District and across the country.

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# New EPA rule on lead-based paint operations

On 01 March 2000, the final EPA ruling went into effect for all states to ensure:

- Individuals engaged in lead-based paint (LBP) activities are properly trained.
- Training programs are accredited by EPA
- Individuals and contractors engaged in LBP activities are certified by EPA or an EPA accredited state run program.

This ruling has led to many questions for the installation DPW. How does each installation conduct lead hazard management? How can each Army installation apply the certification and training requirements for LBP activities when based on state and local municipalities? Which states actually enforce LBP activities conducted on Army installations? Who and at what levels are training and certification required?

Most if not all of the above questions can be answered by contracting for LBP activities. To accomplish this, installations can use the Corps of Engineers Guide Specification (CEGS) number 13281 for Lead Hazard Control Activities at the following web site:

<http://www.hnd.usace.army.mil/techinfo/cegs/cegstoc.htm>

In addition to the Corps of Engineers Guide Specifications, the Army has published Engineering Pamphlets (EPs) with standard scopes of work (SOWs) for lead hazard identification and hazard clearance through the U.S. Army Corps of Engineers Hazardous and Toxic Radioactive Waste (HTRW) Center of Expertise (CX). The SOWs can be used universally by Army installation DPWs to conduct pre-design lead/asbestos surveys, lead hazard risk assessments, combination lead-based-paint inspection/risk assessments and lead hazard clearance.

All EPs with the exception of EP 1110-1-30, Pre-Design Lead/Asbestos Survey Standard Scope of Work, are available at the USACE web site <http://www.hnd.usace.army.mil/techinfo/> under "Engineering Pamphlets." EP 1110-1-30 will be available on the web at the end of September 2000.

The three EP SOWs currently available are:

- EP 1110-1-28, Lead Hazard Risk Assessment for Target Housing/Child-Occupied Facilities Standard Scope of Work.
- EP 1110-1-29, Lead Hazard Clearance Inspection Standard Scope of Work.

- EP 1110-1-31, Combined Lead Inspection/Risk Assessment for Target Housing Property Transfers Standard Scope of Work.

One of the benefits of using these generic SOWs is that they include provisions for the data collected by the contractor to be recorded, analyzed, manipulated and reported

## Fort Campbell effectively manages parts washers/ weapons cleaners

by Elaine Hicks

The Pollution Prevention Operations Center (PPOC) at Fort Campbell, Kentucky, is enhancing mission readiness, protecting the environment and saving money, all in one operation. PPOC started doing this in 1997 when it took over management of installation-owned parts washers and weapons cleaners.

According to Alan Caldwell, PPOC operations manager, PPOC saw a definite potential for improvement when it took over management of the parts washers and weapons cleaners program at Fort Campbell.

"By melding on-site service and expertise, increased user safety, compliance awareness training, smart procurement, and waste minimization, PPOC created an efficient, economical and more environmentally friendly parts washer and weapons cleaner program," Caldwell said.

Caldwell said that Pollution Prevention Investment Funds (P2IF) and FORSCOM funding allowed the PPOC to procure equipment and program materials to replace the contracted parts washers at Fort Campbell.

PPOC replaced the old parts washers with the IT-48 Weapons Cleaner System and the RK-60 Engine Parts Washer. Both systems use *Breakthrough*, a recyclable, environmentally friendly, Army-approved P-D-680 TYII substitute. Caldwell said that the PPOC recycles the solvent on-site, resulting in a closed-loop system that reduces waste. Over 14,500 gallons of solvent have been

recycled for reuse so far in fiscal year 2000.

The PPOC-managed parts washers/weapons cleaners reduced program operating costs from \$436,000 to \$171,537, representing an annual cost savings of \$264,463. The program is allowing PPOC to serve and support over 192 customers with 312 installation-owned parts washers/weapons cleaners.

"Soldiers report that mission readiness has increased 25-30 percent with the new parts washers/weapons cleaners program by saving hours of time hand scrubbing parts and weapons," Caldwell said.

Fort Campbell's Pollution Prevention Operations Center was established in 1996 to respond to the need for proactive hazardous materials and hazardous waste management. The PPOC tracks and controls hazardous materials storage and use on the installation. It is the mission of the center to provide a customer-oriented program for complete management of hazardous materials and waste on Fort Campbell. The center manages and performs all pollution prevention initiatives by reducing or eliminating pollution at its source.

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PWD

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# A new approach to tactical concealment planning and design

by Kim Michaels

**C**oncealment — Those topographic variations, whether artificially constructed or natural, that provide protection from ground and aerial observation by the opposition.”

A new approach is being applied to training land design that integrates training and environmental requirements to enhance an installation's training resources — including concealment. Installations can now sustain training lands as well as provide better environmental stewardship — both are requirements in today's environment of diminishing resources and increased regulatory requirements.

Available training lands offer limited maneuverability when training to doctrinal standards. Large expanses of land are needed in order to support these training standards and environmental concerns are ever present. If not maintained, large-scale erosion and loss of vegetation lead to further environmental problems and may negatively impact the training mission. Concealed or otherwise, training lands must be maintained, and a balance between training and the environment must be reached.

The *Tactical Concealment Area (TCA)*

(continued from previous page)

electronically through the Army's Hazardous Lead and Asbestos Optimal Management Program (HALO), developed by USACE Construction Engineering Research Laboratory (CERL). Information concerning this electronic management tool can be obtained at <http://www.cecer.army.mil>. Type “HALO” in the find option.

More SOWs are planned for the future to accomplish other specific LBP activities..

☛ For more information, please contact Jim Routson, DAIM-FDF-FE, (703) 428-6298; e-mail: [james.routson@hqda.army.mil](mailto:james.routson@hqda.army.mil); or Rod Dolton, CENWO-HX-H (402) 697-2586; e-mail: [rod.j.dolton@usace.army.mil](mailto:rod.j.dolton@usace.army.mil) **PWD**

*Planning and Design Guidance* document, established by the U.S. Army Environmental Center, was developed to integrate training and environmental management. The *Guidance* document uses a holistic approach that considers an installation's training needs, existing resources, resource conditions and environmental constraints in planning and designing realistic training areas. The result is expanded or enhanced training resources, fewer environmental impacts and greater safety.

The *Guidance* document provides procedural guidance for trainers and land managers involved in the planning, design and implementation of tactical concealment. It is designed to assist in initiating and implementing most tactical concealment projects for developing realistic, effective and environmentally stable training areas and provides ideas for using in-house resources. Implicit in this *Guidance* document is the need for an integrated team of experts. The team approach ensures the entire installation's needs are met in terms of total training area design.

The *Guidance* document was successfully field tested at two Army sites, Camp Bullis, Texas and Fort Hood, Texas; and two National Guard sites, Camp Guernsey, Wyoming, and Camp Ripley, Montana. This document was created by the field, for the field. It contains lessons learned and general design criteria who came directly from installation experts that work these situations every day.

No other single document pulls this type of information together in one source. There are no set designs or off-the-shelf templates for designing TCAs. “The trick is in the team you develop before any planning or designing takes place,” said Dusty Bruns, Integrated Training Area Management coordinator for Camp Bullis. “Each TCA is an

outgrowth of both training and environmental considerations that are brought to the table by specific team members.”

The *Guidance* document not only provides valuable field knowledge; it also includes pictorial examples that clearly illustrate the text. “The initial field survey was critical for us,” said David Palmer, state environmental specialist for Wyoming. “It provided invaluable information that was needed through the planning and design phases.”

In addition to providing valuable information, the *Guidance* document offered the demonstration sites cost-saving strategies. Marty Skogland, environmental supervisor at Camp Ripley, said, “Using in-house personnel and equipment, like the document suggests, provided more flexibility and reduced our project costs by 50 percent.” At Camp Bullis, a 70 percent savings per acre was accomplished by applying many of the *Guidance* document recommendations. “We have increased our training land utilization for active and reserve components by over 100 percent,” said Dick Strimmel, U.S. Army Medical Command ITAM program manager at Camp Bullis. “Build it and they will come,” he added.

From vehicle maneuverability to wildlife land use and training realism, this document covers a wide range of training land elements. Data sheets and forms are provided for data collection to assist in design planning and effectiveness.

The *Tactical Concealment Area Planning and Design Guidance* document is available to DoD personnel only. Copies can be obtained through the Technical Information Center (TIC) at USAEC-TIC@aec/apgea.army.mil. A web-based version is available to DENIX account holders at <http://aec.army.mil/prod/usaec/et/conserv/conserv.htm>.

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## Fort Knox Recycling Program wins White House award

The recycling program at Fort Knox, Kentucky, won the 2000 White House Closing the Circle Award in the military recycling category for initiatives stressing professional training and community leadership.

The White House Closing the Circle Awards program recognizes federal employees and facilities for efforts resulting in significant contributions to or significant impact on the environment under Executive Order 13101, Greening the Government through Waste Prevention, Recycling, And Federal Acquisition.

Army teams also received two honorable mentions for their use of recycled plastic in place of wood. In the Affirmative Procurement category, Fort Belvoir, Virginia, and the U.S. Army Corps of Engineers' Construction Engineering Research Laboratory (CERL) were honored for using recycled-plastic lumber for a boardwalk, an observation platform and handrails around handicap-accessible fishing piers at Fort Belvoir's Jackson Miles Abbott Wetland Refuge.

CERL also won an honorable mention in the Environmental Preferability category as part of a joint-service team that built the world's first railroad turnout to use recycled-plastic crossties at the Naval Surface Warfare Center, Crane, Indiana.

The winning Fort Knox recycle program has four operational goals:

- Conserving natural resources by maximizing diversion of materials from the waste stream.
- Saving Fort Knox appropriated funds.
- Paying operating and capital expenses out of program income.
- Returning the maximum amount of dollars for use on Fort Knox.

Key to the program is professional training, in areas such as customer service and human effectiveness. Trainers from the Defense Logistics Agency (DLA) provide on-site instruction for the team, and the team visits the program's customers, including paper mills and metal processing facilities, within the area.

The program also stresses educating the community on reducing waste, buying recycled products and increasing recycling efforts.

Since environmental concerns do not stop at the installation boundary, and since Fort Knox is the local expert in recycling efforts, the installation program has become a truly regional program. Fort Knox partners with local federal agencies, state agencies, counties, municipalities, school districts, waste haulers, and businesses to increase recycling within the region.

On a regular basis, the program sorts, processes, and markets 38 separate

rate grades of material, from household and office materials to industrial materials, wood products, metals and demolition debris.

Now in its sixth year, the Closing the Circle award is given in eight categories: Waste Prevention, Recycling, Affirmative Procurement, Environmental Preferability, Model Facility Demonstrations, Sowing the Seeds for Change, Outreach and Executive Order 12856 (Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements).

Each category recognizes an individual federal employee or a team of ➤

## Kentucky Army National Guard saves water costs without spilling a drop

The Kentucky Army National Guard (KY ARNG) identified a drain of precious energy dollars due to the way water usage was being charged for buildings operated on an Army Post.

The Army post was charging all occupants, regardless of type of occupancy or usage, a flat rate per square foot cost for utilities in on post buildings. What this meant was that the storage buildings were being charged the rate as the basic training barracks per square foot. "You can imagine", said CPT Brian DeMers, the KY ARNG Energy Manager, "a 10,000 square foot warehouse with two toilets that were used for weekend training was being billed as if it were a basic training barracks with several companies of soldiers using showers every day."

When the KY Guard started looking for ways to stretch their dollars, they discovered that if they put meters on individual buildings the Army would accept the revised figures and bill at a more accurate rate. In the case of one building the monthly water bill dropped from \$210.00 to \$1.83 — due to metering.

Estimating the actual water usage is fairly easy to do based upon a factor of gallons of water per day multiplied by the documented occupancies of the buildings. Once

the estimated total gallons of water usage per year was reached and compared with the billed amount, an overcharge of more than 2M gallons of water was identified.

"We then discovered that if we looked at all the utilities that were not being metered for all of our buildings and estimated what our actual costs might be, there were significant savings" said DeMers. "We soon discovered that the water issue was just the tip of the iceberg."

Since sewer charges are based off water usage, the KY ARNG was able to reduce the sewer bill as well.

The KY ARNG then started looking at using the savings from the water and sewer to finance metering gas and electric. The result was a \$20,000 utility metering project servicing 4 buildings with a projected payback of 5 years and a savings to investment ratio (SIR) of 2.07. In practice it looks as if the payback will be much quicker.

This is one case where master metering for the whole post did not benefit the individual users. Other users of post real estate are encouraged to examine the utility bills closely to identify such overcharges.

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# Fort Carson's new landfill caps prevent groundwater contamination

by Kelly O'Neil

Fort Carson has nine closed landfills dating from the 1940s through the 1970s. Recently, three of the landfills needed remediation and reconfiguration, including new covers. Conventional landfill covers are quite costly and not always appropriate for the climate, so an innovative evapotranspiration (ET) cap technology was found by the Directorate of Environmental Compliance and Management (DECAM) and approved for use at Fort Carson.

The need to cap these landfills at Fort Carson was identified by the Resource Conservation and Recovery Act Facility Investigation and the Colorado Department of Public Health and Environment to prevent the spread of contamination from those areas.

The ET cap technology chosen is safer for the environment and costs considerably less than conventional landfill caps. It is the first of its kind approved in Colorado, and required extensive coordination and team effort between the installation and the regulatory agencies. Many other Colorado entities that currently require a landfill cap are now considering using an ET cap similar to the type Fort Carson decided upon.

*(continued from previous page)*

employees (including teams made of federal and contract employees) at government facilities. There are separate military and civilian awards.

The recycling category recognizes outstanding activities, including outreach, collection, separation, and processing by which products or other materials are recovered from the waste stream for use in the manufacture of new products (other than fuel for producing heat or power by combustion) at a federal site, facility, or operation. Nominations may be submitted online at <http://www.ofee.gov/ctcawrd/award-00.htm>.

For more information, please call the USAEC Public Affairs at (410) 436-2556. **PWD**

Landfill covers are used to keep water out of a closed landfill. If water is allowed to enter a landfill, it can migrate through the waste materials and carry contamination into groundwater used for drinking, bathing and other purposes. Normally, a landfill cover requires several layers of clay, soil and plastic liners that are sloped to allow precipitation to drain off the top. This conventional design is expensive in Colorado because of the manpower needed and because the type of clay needed is not readily available in the area. Also, clay layers are not an effective mechanism in arid climates because clay tends to dry, shrink and crack in dry weather, creating potential pathways for water to migrate to landfill materials.

A better cover for landfills in arid climates is an ET cap, which is made up of local soils and native vegetation. When it rains or snows, the soil layer acts like a sponge to hold moisture. The moisture then evaporates from the soil layer's surface or transpires through the vegetation. During transpiration, moisture is pulled out of the soil and up through the shallow root systems of the vegetation to its leaves, where it is released into the atmosphere. Therefore, a cover promoting a combination of both evaporation and transpiration—evapotranspiration—moves moisture up instead of down, naturally limiting percolation to landfill materials.

Fort Carson's silty clay and silty clay loam have high water-holding capacities that store moisture until vegetation transpires most of it. Very little water is available to seep into deeper layers, because native prairie vegetation has evolved under water-limited conditions and uses up all the available moisture within the soils. The root systems extend deep enough into the soils to intercept and transpire the water even in wet years, but they don't go deep

enough to penetrate into the landfill trash. Fort Carson's alternative will rely on a system that already works. This naturally sustainable vegetation cover will also support wildlife in the area.

An ET cover costs approximately 75 percent less to install and maintain than conventional multi-layer clay, soil and membrane caps, because it requires only a grading layer and a natural materials layer (the ET layer). When the cost for clay materials is added to this, savings of approximately \$100,000 per acre are realized at Fort Carson. Forty-seven acres at Fort Carson are being covered with ET covers, making the savings \$4,700,000 for this innovative cap.

The environmental advantages of this project cannot be easily measured in dollars. From a compatibility standpoint, a natural cover will work well with wildlife in the area. From a sustainability position, using native soils from the area prevents contamination by preventing surface cracking.

Finally, large-scale excavations of clay and hauling demands are avoided, because the majority of the soils used have come from other construction operations taking place on the installation. All of these advantages add up to a more effective cover for now and the future.

The DECAM served the environment, the public and the soldiers by using an ET cover on landfills wherever possible. The mission statements of the installation and the directorate were met by saving money for training, restoring the land in a more natural manner and preventing potential contamination from onsite landfills from spreading. The payoff for this idea and partnering with the regulators to make it happen can't be measured merely in terms of dollars.

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## Rehab work continues at Savannah District's powerplants

by Verdelle Lambert

To date, Congress has authorized more than \$90 million for Savannah District to rehabilitate two of its three powerplants—work that has been going on at Hartwell since March 1997, and at J. Strom Thurmond since September 1998. The current scope of work at Hartwell is scheduled for completion this September; work at Thurmond will continue into 2004.

### Anatomy of a problem

"Hartwell had been operating in a breakdown-maintenance mode because of so many coil failures," explained Dan Parrott, chief of the district's Civil Works Program Section. "Every time we patched the coils, the capacity of the generator units decreased. We were losing power revenues as well as capacity revenues to the point where we were only getting about two-thirds of what we originally wanted out of that powerplant."

In the early 1990s, the district looked at the condition of all the units at Hartwell and made rational engineering judgments about whether a component should be rehabilitated, repaired, or replaced. In 1994, Congress approved the district's proposal to rewind the generator units and replace the circuit breakers at Hartwell.

"The difficulties that are always associated with rehabilitation work are the unknowns, which can only be discovered when you disassemble a unit," said Tom List, area engineer, Russell Area Office. "There have been surprises at Hartwell, and at Thurmond, which have necessitated cooperation and sin-



*Steve Brown (left), project engineer at Hartwell, watches as contractors install rotor. While the crane holds the rotor suspended in mid air, workers guide the rotor into position in the generator unit—tedious work because the rotor weighs more than 200 tons and has less than a half-inch clearance between it and the generator housing. Hartwell is one of the few external powerplants in the Corps of Engineers. (Photo by Jonas Jordan)*

cere partnering. They required construction, project management, designers, contractors, and the user to determine the actual needs, secure required funding, and modify the contracts while trying to maintain coordination and minimize the time impact to the project."

Since 1996, the project scope has grown to include replacement of the transformers and headgate, bringing the current total rehab cost at Hartwell to \$24.4 million. "My customer is Operations Division," Parrott said. "They operate and maintain the powerplants. We're trying to make sure that we give them a good unit that meets their expectations so that they can meet SEPA's (Southeastern Power Administration) expectations."

"I just received a request from the customer to increase Hartwell's project cost by \$6 million in order to do additional work on voltage regulators, exciters and switch yard equipment," Parrott continued. "We'll submit that budget request this fiscal year, and if it is approved, we will finish the work in 2003."

### A closer look

Hartwell powerplant was built with four generator units. A fifth unit was added in the mid 1980s and is not being

rehabilitated because it is too new and has not had the problems of the older units.

"When Hartwell was built, they installed turbines that were much stronger and more powerful than the minimum required," Parrott explained. "When you run a turbine that provides a lot more horsepower than needed, you run the generators hotter. The last 30 years we ran the generators at Hartwell at 30 percent over what they were designed to, in accordance with the then current policy. That decreased their life, because the hotter you run them, the faster they degrade. We're now upgrading the generator capacity to match the turbine capacity."

Parrott said they had investigated replacing the turbines but determined that it was not economically justifiable. They chose instead to repaint the water passage, patch the holes and gouges, and derust the turbines to make the water flow smoother for better efficiency.

"We're doing the work not just to restore the original benefits but to improve them," Parrott said. "Actually, when the project is completed, we will be getting around 41 percent more power for the same amount of water, which has conservation impacts because we will pass less water to get the same amount of power."





The work at Hartwell is being accomplished through five contracts. Two different contracts—one for supplying, the other for installing the circuit breakers—have been completed. Three of the four generator units have been rewound, placed back in operation, and are performing successfully, according to Steve Brown, project engineer at Hartwell. The fourth is expected to be finished by the end of September.

Brown said they've had "real good cooperation" from SEPA and Operations Division: "When we request an outage, we generally get it; they've just been excellent to work with."

## Power production

Hartwell and Thurmond are what's called peaking powerplants, which means they start generating when the power demands are the greatest.

"Hydropower is so flexible that we can be online and fully loaded in a matter of just minutes," explained Hartwell Power Project Manager David Lee. "It

would take a fossil fuel or nuclear plant several hours to get up to full capacity."

The district's Hydropower Section coordinates all planned outages with SEPA and the Corps' South Atlantic Division, scheduling work within the moderate seasons (spring, fall or early winter) to minimize the impact on the power declarations the district guarantees SEPA it can provide.

"It generally takes six months to rehab a unit," Lee said. "We have five units, so that's 20 percent of our generating capacity not available to us. Plus, there's an overlap period: About the time one unit is ready to go back into service, the next unit is being taken out, so you have a period of time—approximately 30 to 60 days—when you have two units down. That's a little bit more than 20 percent of your availability time."

Parrott said they try to minimize the impact of the rehab work on the powerplants' ability to generate power by having no more than two units out of operation at any one time.

The average annual benefits for the current work at Hartwell is \$3.4 million. "That's how much we estimate we will increase capacity, increase energy output and decrease O&M costs," he said. "With a \$24.4 million project, it will probably take six or seven years to recoup the cost."

Last year, even with rehab work going on, Hartwell produced 329 million kilowatt hours of electricity, bringing in about \$15 million in revenue for the government. Thurmond generated 465 million kilowatt hours, bringing in approximately \$14 million.

## Thurmond scope of work

The district applied lessons learned at Hartwell to Thurmond, which also had its share of surprises. Parrott also shared those lessons with Wilmington District, which operates a sister plant on the Roanoke River and just got their major rehab project funded by Congress last year.

Built in 1954, Thurmond is the district's oldest powerplant. It also had coil and transformer failures, resulting in a scope of work that includes replacement of all seven generators and turbines, four transformers, and seven exciters and circuit breakers.

"We're providing dissolved oxygen generating turbines," said Parrott. "They will help lessen some of the negative impacts of dams on the environment. Basically, what happens is that during the late summer and early fall, the water coming out of the powerhouse is deoxygenated and fish can't live in it downstream, so we are providing naturally aspirated air into the water to help restore some of the oxygen."

Congress has authorized \$70 million for the rehab work at Thurmond. That includes a contingency account of about \$15 million. "Assuming we don't spend the contingency, the project will cost around \$55 million," said Parrott.

"The contractor has replaced generator unit No. 7 and they're working on unit 5 now," said Thurmond Power Project Manager Phinze Davis, pointing out that the units are not being worked on in any particular order. "The turbine is under a modification for oxygen improvement. Voith Hydro got the contract for that and they're in the process of manufacturing and testing a model turbine. It will probably be two years before delivery of the first turbine."

Earnings are based on capacity; Hartwell's is greater. Plants earn more sitting idle ready to run at a moment's notice than actually generating power. 'Regional Village' Concept

Portland District, which is the Corps' design center of expertise for hydropower, did the design work for both projects.

"Part of my challenge in this job is to integrate Portland into our design process," explained Parrott. "Portland does the plans and specs; our Engineering does the review; our Contracting does procurement; Portland does the engineering design and construction review submittals; and we do contract administration here and in the field. We use the regional village concept of standardized software and technology to enhance communication. Portland is a team member just as much as I am here; we don't have to be co-located to get the job done."

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*Verdelle Lambert is a public affairs specialist in the Public Affairs Office in Savannah District.*

## Did you know...?

- The Corps is the fourth largest electric utility in the United States.
- Corps produced hydropower is a clean and renewable source of energy
- The Corps is the largest hydropower operator in the United States, having nearly a quarter of all hydropower capacity (20,720 megawatts). This equals about 3% of the nation's total electric capacity, enough to light up 210 million 100-watt light bulbs!
- There are 75 Corps hydropower plants and 67 non-federal powerplants in operation at Corps dams.
- These 75 Corps powerplants produce enough power (about 75 billion kilowatt hours) to meet the needs of about 8 million households each year!
- The sale of approximately 75 billion kilowatt hours returns more than a half billion dollars to the United States Treasury each year.
- Quick response to customer needs contributes to hydropower's value to the nation's power system. **PWD**



## Tobyhanna's fluorescent light bulbs recycled as hazardous waste

by Wendy Gross

Fluorescent light bulbs are an innovative invention of the 20th century. Designed to save energy over incandescent lighting, the bulbs have a coating of fluorescent material on its inner surface and contain mercury vapor whose bombardment by electrons from the cathode provides ultraviolet light that causes the material to emit visible light. Unfortunately, when things are invented to take care of one problem, another problem can materialize.

Starting in January, the Environmental Protection Agency (EPA) has classified fluorescent light bulbs as hazardous waste because of the mercury content in the bulb. Millions of bulbs were being discarded in landfills, and the Agency saw an opportunity to reduce the risk to human health by banning disposal of the bulbs in landfills and possibly recovering the mercury.

Like other hazardous waste regulations, there are exceptions. The most widely justified one is that household waste is exempt. Therefore, fluorescent bulbs coming from your house do not require special treatment. However, businesses, like Tobyhanna Army Depot, are not so lucky. Tobyhanna generates, on average, 100 burned-out bulbs a day from office areas, bay lighting and shelters.

Another exemption is the Universal Waste Rule. Under this rule, the generator is exempted from hazardous waste labeling and manifesting requirements, some shipping requirements, and allowed to accumulate the bulbs for up to a year, if the bulbs are recycled.

When fluorescent bulbs were not deemed hazardous waste by the EPA, the depot used bulb crushers. These machines crushed the bulbs and trapped the mercury in a filter. Under the new rule, the EPA has determined that this is treatment of hazardous waste and requires a permit.

Continuing the bulb-crushing operation would have increased the depot's environmental liability. Consequently, the depot decided it would take advantage of the Universal Waste Rule and collect and recycle the bulbs.

There are three collection points for bulbs at Tobyhanna, with instructions posted at each location. It is important that the burned-out bulbs are packed tightly in the recycle containers, so there are no voids in the boxes for

movement. Packing this way will protect them in shipment.

Remember, fluorescent bulbs that are generated from an industrial facility cannot be discarded in the regular trash.

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*Wendy Gross is an environmental engineer in the Environmental Management Division, Tobyhanna Army Depot.*

## Boiler operator errors and poor maintenance—leading causes of injuries

by John Lanzarone

A report released by the National Board of Boiler and Pressure Vessel Inspectors for 1999 boiler accidents in North America shows that the leading cause of injuries for various types of boiler accidents is operator error and poor maintenance.

The report addresses power boilers, heating boilers — both steam and hot water, and unfired pressure vessels. In 1999, 2,163 boiler and unfired pressure vessel accidents led to 136 injuries and 21 fatalities in North America. While the Army was fortunate in that no known boiler related fatalities occurred in 1999, we did have our share of accidents.

The data presented in the report shows that power boilers (like those found in our central heat plants) experienced 335 accidents and 140 of those were because of operator error or poor maintenance. Low-water conditions accounted for 67 accidents. Steam heating boilers (like those found in our smaller buildings) had 817 accidents, with 397 related to low water conditions and 258 blamed on operator error or poor maintenance. Unfired pressure vessels (like air compressor tanks and deaerator vessels) experienced 145 accidents, with 60 of those attributed to operator error or poor maintenance. Water heating boilers (like those found in our smaller buildings) had 866 accidents, with 221 being attributed to the low-water conditions and 314 to operator error or poor maintenance.

Clearly, the major source of accidents for boilers and unfired pressure vessels is a lack of proper maintenance, operator error, or low-water conditions. What can we in the Army do to address these potential problem areas?

First, ensure that your high pressure (power) boilers are receiving the annual boiler inspection required by AR 420-49. This inspection may expose problems with the low water cut off device, and may indicate whether the proper level of maintenance is being provided. This inspection can expose improper chemical treatment, equipment deficiencies, and non-conformance to the ASME code. Ed Gerstner at Huntsville, (256) 895-1503, has a boiler inspection contract available to all Army sites in the 50 states.

Second, ensure that your boiler operators are properly trained. While boiler operator certification is one method of ensuring a minimum level of proficiency, without refresher training your operators may no longer be as proficient as they once were. David Palmer at Huntsville, (256) 895-7451, has a training and certification contract that can lead to operator certification or be used as refresher training. **PWD**

*John Lanzarone is a mechanical engineer with the Technology Integration Branch, Engineering & Construction Division, at HQUSACE.*



# Don't wait to take advantage of energy savings!

by Rene J. Quinones and Mark Martinez

Several years ago I visited the Naval Civil Engineering Laboratory at Port Hueneme, California, now referred to as the Engineering Service Center. I was shown examples of advanced energy conservation research such as vinyl-framed low-e windows for housing, low or no-flow appliances for water conservation research, and so on. At the time, much of the work at the Center was considered "leading edge," and I was introduced to many new and interesting ideas.

During my visit, I met an individual who informed me about the differences in no-load loss between a standard core distribution transformer versus an amorphous core transformer. Since I was new in the energy conservation field, I took notes as most of his conversation was in the form of numbers and formulas, with few words.

In plain English, I noted that while all transformers use energy in their "stand-by" mode, even with no secondary load, the amorphous core transformer loses only about half the power of a standard transformer in its "stand-by," or non-operating mode.

Thinking back to my own facility, this told me that all of my streetlights that were off during the day still used

more power than they should via the no-load loss scenario. The new transformer design could possibly be used to save energy.

I checked on the price of amorphous core transformers at the time and quickly realized that it was going to be hard to get funding, since they included a higher premium for the increased efficiency. The energy savings were there, but the economics for cost effectiveness were not. So I let this piece of information sit while we pursued other opportunities in energy efficiency.

Now it's a decade later, and we have just finished another PCB survey of our transformers to ensure that if we privatize our electric system, we have complied with all of the NEPA requirements. As a result, we have located about 50 transformers on poles that are hooked up on the primary side with no secondary load, a result of the WW II wooden building demolition program. And they are all using energy in a "no-load" situation.

I remembered the discussion from 10 years ago and contacted my local utility company for any data that could help me compute the energy savings if we were to perform a total disconnect of the primary. My utility representative

made contact with a researcher at Lawrence Berkeley National Labs. They in turn referred us to a study from Oak Ridge National Labs, titled "Supplement to the 'Determination Analysis' (ORNL-6847) and Analysis of the NEMA Efficiency Standard for Distribution Transformers, by Barnes, Das, McConnell, and Van Dyke, July 1996.

The study contained a table with the information I needed. Here is a recap of the most commonly used transformers under no-load conditions in watts lost/hr:

KVA	Single Phase	Three Phase
15	40	110
25	58	157
50	101	279
75	133	348
100	166	451
250	361	939

A single phase 75-kVA-transformer with no load will draw 3.2 kWh/day or 1,168 kWh/yr. This only adds up to roughly \$87/yr, but it counts against your BTU/SF ratio for energy consumption. The first year's cost of going back out to the job site will take you about four years to recover, but your BTU/SF ratio will see an immediate reduction. For large facilities, this can add up to over a megaWatt-hour per year!

So don't wait to take advantage of energy savings, no matter how small! Contact your Real Property section and get a list of buildings that are to be demolished and ensure that the project folder includes total disconnection of a transformer, not a partial disconnection. Then go out and survey your pole lines for transformers that are partially energized, disconnect the primaries, and save energy!

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Rene J. Quinones is the Energy Manager at Fort Irwin, California; and Mark Martinez Works for Southern California Edison.

## Fort Carson takes advantage of solar energy

Fort Carson is the first federal facility to install a "solar wall" —a solar ventilation air pre-heating system. The solar wall heats Fort Carson's new high-bay aviation maintenance facility at Butts Army Airfield by pre-warming air as much as 54 degrees fahrenheit and supplying the heated air to the building's central heating system. This collector system is especially advantageous for buildings that require large volumes of heated air.

The system cost \$140,000 to design, build and install. The unglazed collector consists of 7,800 square feet of sheet metal dotted with tiny holes. It is mounted several inches from the wall on the south side of the hanger. The collector warms the outside air as it flows through the holes. As the air rises in the space between the wall and the collector, it is drawn into the building's air duct system. The building's central heating system then boosts the temperature to the desired level.

The estimated annual savings in natural gas is \$11,000. In addition to energy savings, the solar collector improves indoor air quality, adding to occupant safety and comfort. It requires virtually no maintenance, an important consideration for federal facilities where maintenance dollars are in short supply. Because the incoming air is already heated significantly above ambient temperatures, smaller heating systems are required, significantly reducing costs. **PWD**



# Cooling with district heat

by Petra Sauer

District heat is a “fuel type,” that the 411th BSB in Heidelberg, Germany, has used for space heating and hot water generation for 20 years. It has contributed to considerable energy savings as well as to the reduction of emissions into the atmosphere, because the heat is generated by a coal-fired co-generation plant. District cooling, however, is something new for U.S. Army installations in Heidelberg. The special kind of cooling by an absorption chiller, recently installed for six buildings at Campbell Barracks, is actually a first for all of USAREUR.

The need for air conditioning (for ADP systems as well as for room ventilation) at Campbell Barracks, particularly in those six buildings, had increased constantly over the years. Fifty-four cooling units were already operating in those buildings— 16 of them with chilled water and the other 40 with direct evaporation systems.

There were, however, distinct disadvantages incurred by the existing air-conditioning systems (all reciprocating cooling machines). They used ozone-depleting refrigerants and consumed huge amounts of electricity, the type of energy source with the worst efficiency ratio (input of primary energy to output of power). And even the well tuned

demand-side management of the Utilities Energy Monitoring and Control System (UEMCS) that Heidelberg's DPW employs could not forestall all of the expensive peak demands, which were mostly provoked as cooling machines were switched on.

In 1995, the Energy Team from the DPW figured out how to avoid additional and actually decrease electricity consumption and costs for air conditioning, without reducing service to Campbell Barracks, where U.S. units are stationed together with NATO and J C HQ forces. Instead of just connecting more and more air-conditioning units that raise the electricity bill, the existing district heat transfer station would be tapped by laying a hot water line to an absorption chiller installed near the buildings to be connected.

Using an evaporating cooling agent, the absorption chiller takes heat away from the 185° F hot water coming from the district heat transfer station and cools the medium in the chilled water circuit down to a supply temperature of 42.8° F. Well insulated cold-water lines

then transfer the chilled water from the absorption chiller to the cooling units in the six buildings.

The units would be reconstructed for use with chilled water by replacing the cooling coils and pipes. Since lithium bromide would be used as a cooling agent, there would be no need for ozone-depleting refrigerants. Further, the primary energy source used would be the same as for the district heat used for heating and hot water generation: waste heat from the coal-fired co-generation plant just a few kilometers away. This would yield an 80 percent reduction of CO<sub>2</sub> emissions as well as a 70 percent reduction in primary energy use, compared with the previous air-conditioning system that used reciprocating cooling machines.

The absorption chiller proposal was submitted in March 1996, during the annual call for project proposals to the Federal Energy Management Program (FEMP). Along with 58 other proposals from USAREUR, the absorption chiller project applied for “energy money.” With guaranteed annual savings of about 4,000 mBtu (\$258,000), an SIR of 4.6, and a simple payback of 2.3 years, the chiller project ranked close to the top of the list. It received \$855,000 in September 1998. It was, however, to be the last year before FEMP funds were withdrawn.

After the bidding procedure was performed and contracts were awarded, the grant money was used to:

- Replace the cooling coils and pipes in the cooling units inside the buildings.
- Pay for the cooling lines from the absorption chiller to the connected buildings, as well as for the heating line from the district heat transfer station to the absorption chiller.

Parallel to the pipes, control cables for the UEMCS were installed to enable the technicians of the Energy Team to monitor and control water flow, temperatures, pressure and any other relevant operating variables. The chiller was paid for and is operated and maintained by the district heat supplier, the City Utilities of Heidelberg.



*Absorption Chiller – Waste Heat Powered*



# Fuel cell system powers Anchorage Post Office

The Corps of Engineer's latest project under the Department of Defense Fuel Cells Program is also the nation's biggest to date. In partnership with the U.S. Postal Service (USPS), Chugach Electric Association, Inc., and International Fuel Cells (IFC), the Construction Engineering Research Laboratory (CERL) designed a system of five fuel cells connected in parallel to provide an uninterrupted power supply for USPS's Anchorage center.

A fuel cell is similar to a battery. It uses an electrochemical process to convert chemical energy into electricity and hot water. Each IFC-supplied PC25( fuel cell generates 200 kilowatts of electricity, enough for more than 100 homes, and more than 700,000 Btus per hour of usable heat.

Heat recovery from the fuel cells will help provide space heating to the facility, increasing the overall fuel efficiency of the Postal Service Center. As a result, less fuel will be needed than from conventional systems.

Fuel cells do not burn fuel so the system eliminates air emissions normal-



*An array of five fuel cells delivers 1 megawatt of electricity to the Post Office via the local electric utility's grid. Recovered heat warms occupants. The system is part of Chugach's power grid and the utility operates it for USPS. Compared to a combustion-based system, the fuel cells avoid releasing some 200,000 pounds of pollutants and 11 million pounds of carbon dioxide into the atmosphere each year.*

ly associated with acid rain and smog, and dramatically reduces those associated with global warming. Compared with electricity generated from the average combustion-based processes in the continental U.S., a one-megawatt fuel cell system would save more than 200,000 pounds of air pollution and 11 million pounds of carbon dioxide from the atmosphere during each year of operation.

Research, development, manufacture and installation of the \$5.5 million fuel cell system was funded, in part, by

Chugach, USPS, DoD, Cooperative Research Network of the National Rural Electric Cooperative Association, and the Electric Power Research Institute.

In addition, a new control system for the project was developed by CERL as part of the DoD Fuel Cells Program. The system assures that the facility will continue to operate uninterrupted during a grid outage. If there is a grid outage, the fuel cells transition to operate as an independent system, continuing to power the Postal Service facility. The automatic transition will appear seamless, eliminating the need for conventional non-interruptible power supplies and stand-by generators.

A CERL research team has managed the DoD Fuel Cells Program for its duration in the interest of advancing this environmentally friendly technology by introducing it at military installations. To date, 31 fuel cells have been installed under the program. CERL also manages the Fuel Cell Rebate Program.

For more information, please contact Dr. Michael Binder, (217) 373-7214, e-mail: m-binder@cecer.army.mil or Frank Holcomb, (217) 352-6511, ext 7412, e-mail: f-holcomb@cecer.army.mil **PWD**

*(continued from previous page)*

Construction was begun in October 1998, and operation began in August 1999. The capacity of the absorption chiller is 1,200 kW, which is equivalent to 343 TN. That is sufficient, at least in the first phase of operation, when only the selected six buildings are to be supplied. With an eye to the future, the absorption chiller facility was designed for 700 TN, which allows for additional cooling load and therefore the connection of more than the original six buildings. Meanwhile, there have already been inquiries about connecting additional buildings to the new cooling system.

Absorption chillers should be brought into play wherever waste heat is available as an energy source and cooling is needed for offices, ADP rooms, or similar facilities. Due to their proven ability to reduce CO<sub>2</sub> emissions 58 percent or more, compared to conventional systems, absorption chillers can be considered a future technology that is already available in the present.

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# Problems at Fort Tank— the electrical adventures of Joe Sparks

by Ron Mundt

## Problem #3

It was early Tuesday morning as Joe Sparks slowly rolled out of his red pickup truck to start another day at Fort Tank. Tuesday mornings were especially difficult for Joe since Monday nights were usually taken up with refresher electronic courses down at the local community college.

Even though Joe was the installation electrical engineer, he felt that his educational background needed improving. Joe had obtained his electrical engineering degree about twenty years ago during the transition period between vacuum tubes and transistors. For that reason, he did not always feel comfortable when confronted by electronic problems and he was trying to rectify that.

As Joe walked into his office, John B.T. Punch, the boiler plant foreman, started to talk about a problem. One of his 50 hp, three (3) phase, 460 volt, motor-driven feed pumps (pump #1) was overheating so much that John removed it from line and was using the alternate pump. He did not know if the problem was with the motor or the pump, and he wanted Joe to take a look at it.

Joe felt a little unsure as he started to check out the pump motor. This particular motor was driven by a variable speed drive (much more energy efficient than traditional controllers) that was installed several years ago. As usual, it was a low bid item and not necessarily one of the better drives. Plus he was not as knowledgeable about “drives” as he wanted to be.

Joe started pump #1, and as John had said, it was running very hot. Unequal load voltages and current quickly indicated that the problem was on the motor side. Unequal motor voltages can cause negative sequence currents, developing opposite motor torque. This can create heat in the motor and sometimes very quickly cause motor winding insulation failure.

Joe's first thought was that there was a shorted motor winding, but checking the winding resistance told him the problem was not with the motor.

Things now pointed in the direction of the “drive.”

Not really knowing where to start, he asked himself, “What could fail inside the drive that would develop unequal voltages?” The only spare parts that were readily available for the drive were silicon-controlled rectifiers (SCRs) and diodes. Additionally, SCRs are a common replacement part. He decided to start there.

After checking the power inverter circuits, Joe found a faulty SCR and diode. The components were replaced and the motor pump heating problem went away.

Later, back at the office, when told of the solution to the overheating problem, John B.T. Punch was surprised that the problem was nowhere near where the symptoms were occurring. Joe reminded him that this was very frequently the case with electrical problems.

## Problem #4

It was a cold day at Fort Tank. With the wind factor and ambient temperature, the outside temperature was  $-15^{\circ}\text{F}$ . The rain that had fallen the night before had transformed Fort Tank and the surrounding communities into one big “ice box.”

Joe Sparks, the installation electrical engineer, entered his office from the outside cold. Stodge Gecko, who had Joe's position ten years earlier, before he got promoted, was on the phone. Joe could tell that something was wrong. After five minutes, Stodge told Joe to immediately go to the Bond Building, and find out why their system “had gone down.”

The Bond Building was a top secret communications building that provided worldwide security information. Joe went over to the Bond Building, where the facilities manager, Mr. Jones, quickly ushered him into a briefing room with some computer “nerds,” and security managers.

During the briefing, Mr. Jones explained that the previous night, a short utility outage had occurred. Normally, this would not have created a problem because all the computer systems were supplied with conditioned electrical power via an uninterruptible power supply (UPS), with generator backup. However, during the night, the systems went down, even though the back-up power came on.

After an investigation, no problem was found except that the UPS circuit breaker had tripped. The Bond Building had purchased a less expensive UPS unit during a system upgrade several years earlier. Mr. Jones did not feel that the UPS was as reliable as it should be, and now they were paying for it. They wanted Joe to assure them that the same thing would not happen the next time there was a power outage.

Mr. Jones was a little upset when Joe wanted to go to the cafeteria for coffee instead of going straight to the power plant building, but he just nodded and said he would expect to hear from him before the end of the day. Joe wanted to go for coffee because he knew his neighbor, Jack Disc, would be there for his morning break (coffee was not allowed in the computer rooms). Besides, Jack worked the night shift and most likely had been at his computer terminal when the utility lost power.

Jack quickly filled Joe in on the sequence of events after the utility outage occurred. He said that normally he can not tell if there is a utility outage in his computer room, but last night when the systems went down for a few seconds, all power was lost except for the emergency lights. Joe thanked Jack and left for the power plant building to have a talk with “Big Al,” the power plant operator.

The power plant conditioned power system consisted of three rooms, a generator room, a UPS room, and a battery room. The system was composed of three 750 kW diesel engine generators, two 150 kVA redundant UPS modules, and associated switchgear.

Joe greeted Al as he walked into his office and explained what he wanted. Al said that he had gone home last night







several minutes before the utility outage occurred. The only thing that he remembered that seemed unusual the previous night was that someone had left two windows open in the battery room. Al wasn't sure when someone had last been in the battery room during the week. After hearing this, Joe's eyebrows went up and he smiled.

A few minutes later, Joe told Mr. Jones he was ready to discuss the problem. Soon Joe was sitting at the table in the same briefing room, with the same managers. When asked what could be done to prevent the system from going down again, Joe replied, "Just keep your windows down."

Smiling, Joe continued. "The existing load on the UPS is running close to maximum capacity." Joe knew this

because he had assisted in writing a scope of work last year for upgrading the system. "The system went down last night," he explained, "because the battery that supplies power to the loads for the short time it takes the generators to come on line did not have adequate capacity."

At that point, one of the computer managers irately said that can not be correct because a battery load test was completed just last week. Joe replied, "That may be correct, but I'll bet the test is based on an ambient temperature of 77°F. The temperature last night was in the minus numbers, and with the battery room windows being left open, the batteries basically had been exposed to the outside temperature. Given a temperature of 25°F, the battery capaci-

ty is reduced by 65%. The temperature was much lower during the night the utility outage occurred. The battery could not supply adequate power, and so the system switched to the bypass source that wasn't there for several seconds (until the generator started).

Mr. Jones smiled and said, "Now we can put another \$25,000 towards our system upgrade."

Do you have an electrical problem for Joe Sparks to solve? If your answer is yes, contact Ron Mundt at (703) 704-2763, e-mail: [ronald.k.mundt@smo01.usace.army.mil](mailto:ronald.k.mundt@smo01.usace.army.mil) **PWD**

*Ron Mundt is an electrical engineer on the PREP Team of the Special Missions Office of Military Programs.*

## Red River Army Depot's new light fixtures brighten lives and save money

*by Roger K. Simmons*

Over the past several months, the Directorate of Public Works has been working to accomplish retrofits of light fixtures throughout the Red River Army Depot. This project is a joint effort with the Corps of Engineers in Huntsville, Alabama, and Advanced Lighting Systems of California.

The most immediate and noticeable effect of this project is the dramatic increase in light levels in the offices and work areas affected. Typically, light levels are increased by an average of 175 percent. The comments most often heard by the customer are something like "Who ordered the tanning bed?"

The lamps and ballasts used in the retrofit are the most recent and state-of-the-art energy-efficient components on the market today, yet have several years of proven performance in the lighting industry.

To date, we have performed retrofits in more than 20 buildings on the depot, for a total of more than 3,150 fixtures. The lamps used in this project typically produce a color rendering index as close to natural sunlight as possible. This means that white paper actually looks white, instead of gray or off white, and you can see what you are reading a lot better.

The less obvious benefits come through the savings in energy costs and reductions in

maintenance and repair that are achieved. These retrofits provide lamps that reduce electric consumption by an average of 22,000 kWh per year or approximately 73 kWh per fixture per year.

Additionally, the new components reduce maintenance and repair cost for a number of years since the new ballasts are warranted for five years and have an average life rating of 24,000 hours. This means that even if 20 percent of the lamps fail within the first year, there are still enough savings in energy and maintenance costs to provide a simple pay-back of less than 1.5 years.

Throughout the course of this project, members of the DPW have maintained close communication and coordination with the customers. A primary set of goals included:

- Ensuring that everyone was informed as to what work was being done.
- What everyone might expect at the end of the retrofits.
- Scheduling operations in a manner minimizing disruptions to daily activities.

In some cases, DPW members worked 14 to 16 hour days, but the overwhelmingly

positive customer response made everything worth it. To date, only three fixtures are known to have failed. That equates to a 0.09 percent failure rate! It indicates *quality* products and workmanship.

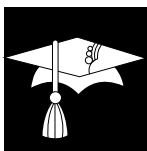
That's good news in anyone's book!

Work will continue under this contract, and savings will continue to add up. Things are getting brighter at the Red River Army Depot. We may have to start issuing shades as part of our safety equipment, but we should save enough money to pay for them through energy efficiencies and conservation.

One final note. The AMC Energy Office initially provided funding for these retrofits, and subsequent funding has come from the Depot's Recycling Accounts. These are funds that are not part of the Army Working Capital or Defense Operation Budget Funds, which directly affect RRAD's Net Operating Revenue (NOR). Therefore, the cost of accomplishing this work had no impact on the NOR, while the savings recognized had a positive impact.

POC is Roger K. Simmons, (903) 334-3976 DSN 829-3976, e-mail: [rsimmons@redriver-ex.army.mil](mailto:rsimmons@redriver-ex.army.mil) **PWD**

*Roger K. Simmons is the Energy Manager for the Red River Army Depot.*



## HQUSACE offers Sustainable Design and Development training

In the last few years, we have seen a renewed emphasis on sustainable design and development (SDD) within the federal government. Recent Executive Orders, DoD, Army and USACE policies require us to adopt its principles. To help instill the concepts of SDD, we have updated much of our technical criteria. In addition, we have developed an SDD training workshop, which we conducted at Omaha, Sacramento, Savannah and Seattle Districts from June through August. Future training dates are provided in the schedule below.

Today's sustainable design and development (SDD) incorporates the energy concerns of the 1970s with the new concerns of the 1990s. This includes:

- Damage to the natural environment.
- Emissions of greenhouse gases and ozone depleting chemicals.
- Use of limited material resources.
- Management of water as a limited resource.
- Reductions in waste.
- Indoor environmental quality.
- Occupant/worker health, productivity and satisfaction.

Here are some comments about the training taken from the course evaluations:

*"We had 30+ participants at the SAS session, with approximately half of those being from installations and MACOMs/MAJCOMs. The diversity of the group made for interesting discussions, and ensures that all programmers, project managers, and designers will understand the need and merits of this initiative."*

*"During the instruction, there were times when we were split up into teams to work on solutions to a case study. In those instances, it was good to have a cross section of varied experiences and disciplines on your team to come up with team solutions/output."*

*"The information regarding the Green Building Council's rating system is probably the most important to be gained from the course. And, when CERL gets the militarized version disseminated throughout the Army and Corps, it will make the task much easier."*

HQUSACE will present scheduled SDD Training at the following locations:

Districts	Dates	POC
Fort Worth, TX	17-19 Oct	Jimmy Baggett, 817-978-2054
Louisville, KY	24-26 Oct	Doug Pohl, 502-582-5788
Mobile, AL	7-9 Nov	Michael Thompson, 334-690-2709
Honolulu, HI	7-9 Nov	Russell Uyeno, 808-438-8511
Tulsa, OK	14-16 Nov	Kerry Ingram, 918-669-7004
Korea /Japan	14-16 Nov	Jack Giefer, 011-822-2270-7677
New York, NY	28-30 Nov	Richard Wright, 212-264-9217
Kansas City, KS	9-11 Jan 01	John Bourdo, 816-983-3236
Baltimore, MD	TBD Jan-Mar 01	Pete Rossbach, 410-962-3845
Norfolk, VA	TBD Jan-Mar 01	Terry Deglando, 757-441-7702
Albuquerque, NM	TBD Jan-Mar 01	TBD
Alaska	TBD Jan-Mar 01	Scott Bearden, 907-753-5770
Europe	TBD Jan-Mar 01	TBD

These workshops are for USACE Districts and MACOM/installation personnel. USACE Districts will inform their customers of these workshops.

For more information, please contact one of the following POCs at HQUSACE or OACSIM: Harry Goradia, CEMP-ET, (703) 428-6460 DSN 328, e-mail: [harry.goradia@hq02.usace.army.mil](mailto:harry.goradia@hq02.usace.army.mil); David Bohl, CECW-EWS, (703) 761-1497, e-mail: [david.c.bohl@usace.army.mil](mailto:david.c.bohl@usace.army.mil); or John Scharl, DAIM-FDF-M, (703) 428-7614 DSN 328, e-mail: [scharja@hqda.army.mil](mailto:scharja@hqda.army.mil) **PWD**

## Last chance to sign up for classes

Need an update on Job Ordering Contracts (JOC)? How about sharpening your master planning or real property skills? You're in luck! There are still a few spaces left in the upcoming block of classes offered by the Huntsville Professional Development Support Center, but you have to act quickly. Check below to see if one of these classes is for you:

Course	Title	Dates	Location	Tuition
991	DPW JOC Advanced	4-6 Dec 2000	Huntsville, AL	\$625
326	Master Planning Skills	8-12 Jan 2001	Huntsville, AL	\$900
150	Real Property Skills	22-25 Jan 2001	Huntsville, AL	\$850
988	DPW PWBOC	22-26 Jan 2001	Huntsville, AL	\$625
101	Economic Analysis MILCON	29 Jan-2 Feb 2001	Huntsville, AL	\$1,850

For more information about attending Professional Development Support Center courses/sessions, please call Jackie Moore or Sherry Whitaker, (256) 895 7421/7425. To enroll in a course, FAX or mail your DD Form 1556 to:

USACE Professional Development Support Center, ATTN: CEHR-P-RG  
P.O. Box 1600 Huntsville Alabama, 35807-4301  
FAX (256) 895-7469.

Course Descriptions are available at: <http://pdsc.usace.army.mil> **PWD**



## TRADOC / FORSCOM

# Architect/Engineer Contracting Conference/Workshop

by Robert Winne

The first TRADOC/ FORSCOM Architect-Engineer Contracting

Conference and

Workshop was held in

Colorado Springs,

Colorado on July 19-20, 2000. The

Conference/Workshop was hosted by the Fort Carson Directorate of Contracting and was facilitated by Robert Winne, A-E Contracts Manager for the Fort Lee Directorate of Public Works.

In attendance were representatives from the Directorates of Contracting (DOC) and the Directorates of Public Works (DPW) from the Installations of both MACOMs that are presently contracting for A-E services. Also in attendance were several other Installations that are scheduled to begin contracting for A-E services in the near future. In all, six TRADOC Installations (Fort Benning, GA, Fort Huachuca, AZ, Fort Leavenworth, KS, Fort Lee, VA, Fort Leonard Wood, MO, and Fort Sill, OK) and three FORSCOM Installations (Fort Campbell, KY, Fort Carson, CO and Fort Dix, NJ) were represented. In addition, representatives from the respective PARC's offices were also in attendance as was a representative from the TRADOC Office of the Engineer.

This gathering of both Acquisition and Engineering professions solidified the confidence that both the senior leadership from the individual installations and top management at the MACOM level have with this proven contract program. The major focus of the Conference/Workshop was to discuss and resolve various A-E issues and topics unique at the installation level as well as those that are general in nature to contracting for A-E services. Topics included the public announcement (CBD synopsis) for A-E services, the regulations governing the selection process, the negotiating strategies for both A-E Indefinite Delivery Contracts (IDCs) and task orders, the award process, the administration of contracts and task orders, the development and structure of Independent Government

Estimates (IGE) for both IDCs and individual task orders, the design review process, the ACASS/PPIMS Evaluation process and the 6% statutory limitation for design projects. In addition, several other subjects related to A-E contracting were discussed, such as recommended work-arounds for awarding A-E contracts using the Standard Procurement System (SPS) and Procurement Desktop (PD2), potential pitfalls and problem areas to avoid during the course of an A-E design project and the drafting of an A-E Contracting Guide for TRADOC/FORSCOM installations.

In April 1997, TRADOC received permanent A-E contracting authority after a very successful two-year test which involved five TRADOC installations. During the test period and continuing today, both the DOCs and the DPWs work together as a joint-venture to contract for A-E services. Together, each organization is responsible for every aspect of the acquisition and engineering process associated with A-E contracting. To date, four TRADOC installations are utilizing the A-E contracting authority granted to TRADOC in 1997, with two other installations set to begin in the near future.

The success that was generated at TRADOC caught the attention of the FORSCOM PARC Office in 1998. The FORSCOM PARC staff began conducting inquiries with TRADOC on how they could also obtain such contracting authority. Personnel from the TRADOC PARC Office as well as from Fort Lee, assisted FORSCOM with the procedures in requesting authority and educating their personnel with the various facets of the TRADOC program and of A-E contracting. This effort led FORSCOM in successfully obtaining A-E test authority in April 1999. Under the test agreement, selected FORSCOM

installations have been granted authority to contract for A-E services for a specific period of time. At the conclusion of the test period, an evaluation

team comprised of personnel from the Assistant Secretary of the Army for Acquisition, Logistics and Technology ASA (ALT) and the U.S. Army Corps of Engineers (USACE) will conduct an evaluation of the FORSCOM program. The evaluation will be similar in nature to the evaluation conducted at Fort Lee in 1997. To date, Fort Carson and Fort Dix serve as the test sites for FORSCOM.

This collaboration between TRADOC and FORSCOM is a concerted effort by both Commands to establish a working relationship to learn, share and develop feasible solutions to various Contracting issues. The initial alliance between TRADOC and FORSCOM started in May 2000 as both Commands joined forces to conduct the 1st Annual TRADOC/FORSCOM Acquisition Conference. The Architect-Engineer Conference & Workshop was originally scheduled to be held in conjunction with the Acquisition Conference, but so much interest was shown that it was decided to hold it independently.

The A-E Conference/Workshop not only provided a thorough overview of the A-E contracting processes, but also established a working network for the acquisition and engineering personnel within both commands. This joint effort by TRADOC and FORSCOM is anticipated to be a productive relationship as it will undoubtedly assist the DOC and DPW personnel involved with this unique contracting venture in becoming better equipped to service the installations' architectural and engineering requirements.

POC is Robert Winne, (804) 734-5150 DSN 687, e-mail: winner@lee.army.mil **PWD**

*Robert Winne is the A-E Contracts Manager at the Fort Lee DPW.*



# Wind Energy Conference held

by Satish Sharma

The Defense Energy Support Center sponsored a one-day Wind Energy Conference with industry in August 2000 at their facility at Fort Belvoir. The conference was an important first step in the exchange of information and provided valuable insight into harnessing wind power at installations.

Wind power technology has come a long way from the windmills of the 1800s and the turbines of the 1980s. The energy generated is from a renewable source and often referred to as "Green Power." Wind power is clean and competitive with conventional sources of power in specific applications at remote sites. However, the current cost of wind power is higher than that available from conventional sources and the industry must charge a premium for green power to make for viable projects.

The key to a successful wind power project is the availability of wind at high velocities throughout the year and a high rate of conventional power. This wind velocity is highly dependent on local terrain conditions, and the siting of the wind turbine is very critical. It is almost an art perfected by a select few in the industry. Placing wind turbines off by even a few feet can mean the difference between a successful project and a failed one.

In addition, the permit process must address, at a minimum, the following:

- Installation mission and land use.
- Noise.
- Impact on birds.
- Aesthetics (visible eye appeal).
- Health and safety.
- Air and water quality impacts.

The Department of Energy recognizes these concerns and has developed a strategy to expand use of wind power. The initiative is called

"Wind Powering America," and the goal is to install 10,000 MW of wind power capacity by 2020. The strategy is to help industry by encouraging federal, local, city and county agencies and businesses to buy wind generated power. The commitment of thirty federal agencies in Colorado to purchase wind power from a 10 MW utility operated wind farm is an example of this strategy.

Army installations are encouraged to contact their local utility companies and consider buying green power in the power mix. Installation participation with local communities makes for economies of scale and reduces the risks and costs of wind power developers.

☎ POC is Satish Sharma, DAIM-FDF-UE, (703) 428-7001 DSN 328, e-mail: [satish.sharma@hqda.army.mil](mailto:satish.sharma@hqda.army.mil) **PWD**

*Satish Sharma is the team leader of the Utilities Engineering Team in OACSIM's Facilities and Housing Division.*

# HQUSACE ready for DPW award nominations

On 18 September 2000, Kristine Allaman, Chief of the US Army Corps of Engineers, Installation Support Division, kicked off the DPW Awards Program for calendar year 2000 with a memorandum to all Major Army Commands (MACOMs). MACOMs have until 1 December 2000 to gather nominations for the nine award categories from Army installations and submit them to the Headquarters, U.S. Army Corps of Engineers (HQUSACE). HQUSACE will consolidate nominees from individual MACOMs and return them to the MACOMs to evaluate and rank. The results of the MACOM evaluations and rankings are due in HQUSACE by 1 February 2001. USACE will then tabulate rankings and report winners to each MACOM.

Winners will receive their awards during the DPW Training Workshop to be conducted with the Army Engineers Conference, ENFORCE XXI, at Fort Leonard Wood, Missouri, from 7-12 May 2001.

☎ USACE POC for the 2000 DPW Awards Program is Milt Elder (202) 761-5769, e-mail: [milt.r.elder@hqusace.army.mil](mailto:milt.r.elder@hqusace.army.mil) **PWD**

# AEC to host Environmental Restoration Workshop

The U.S. Army Environmental Center (AEC) is hosting the Army's Defense Environmental Restoration Program (DERP) 2000 Workshop in New Orleans, December 12-14, 2000.

Held periodically since 1992, the workshop serves as the primary forum for disseminating new information on Department of Defense and Army policy and guidance.

The workshop is structured to facilitate discussion and provide a training forum on policies, successes, lessons learned, technology transfer, and information exchange for

Army and regulatory personnel involved in the Army's Restoration Program.

The theme of the workshop—"Cleanup: Restoring the Past, Protecting the Future"—showcases the military's continued emphasis on sound environmental stewardship and improvement of its restoration programs.

☎ AEC invites all federal employees to attend this unclassified workshop.

Additional information is available via the DERP 2000 website at <http://www.ttclients.com/derp> **PWD**

# Readership Survey for *Public Works Digest*

1. Do you work at: ☐ an installation DPW  
☐ MACOM ☐ ACSIM  
☐ Other HQDA ☐ Corps District  
☐ Corps Division ☐ Corps headquarters  
☐ Other → Where? \_\_\_\_\_

2. What is your position/job title?  
 \_\_\_\_\_

3. Are you on the *Digest* mailing list? ☐ Yes ☐ No

4. If not, how do you receive the *Digest*?

5. Do you receive and read the *Digest* regularly?

6. Do you read: ☐ Every article. ☐ Most articles.  
☐ Only articles relating to specific topics. → What topics?  
 \_\_\_\_\_  
 \_\_\_\_\_

7. Do you have access to the World Wide Web? ☐ Yes ☐ No

8. Would you read this publication from the Web?  
☐ Yes ☐ No

9. How helpful is it for you to have the *Digest* available as a downloadable file on our homepage?  

Very useful				Not useful
1	2	3	4	5

10. If you have accessed the *Digest* from the Web, have you experienced any difficulties? ☐ No ☐ Yes—please describe:  
 \_\_\_\_\_  
 \_\_\_\_\_

11. Overall, how useful is the *Digest* to you?  

Very useful				Not useful
1	2	3	4	5

12. How would you rate the quality of articles?  

High				Low
1	2	3	4	5

13. How important are stories on each of the following subjects? Would you like to see more or fewer of each type?

a. Installation Management

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

b. Corps Support

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

c. Facilities Engineering

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

d. Environment

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

e. Energy

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

f. Professional Development and Training

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

g. Automation

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

j. New technologies

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

k. Installation good ideas/lessons learned

Important				Unimportant
1	2	3	4	5
More				Fewer
1	2	3	4	5

14. What topics would you like to see addressed in the *Digest*?  
 \_\_\_\_\_  
 \_\_\_\_\_

15. Do you have other suggestions or comments?  
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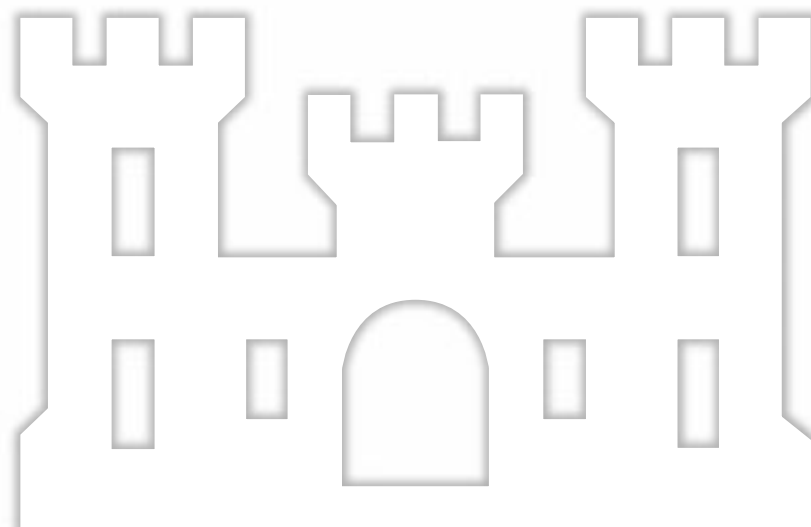
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